

VOLUME 8

Pages 1827 - 2098-A

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable YVONNE GONZALEZ ROGERS, Judge

EPIC GAMES, INC.,)	
)	
Plaintiff,)	NO. C-20-5640 YGR
)	
vs.)	Wednesday, May 12, 2021
)	
APPLE, INC.,)	Oakland, California
)	
Defendant.)	BENCH TRIAL
)	
APPLE, INC.,)	
)	
Counterclaimant,)	
vs.)	
)	
EPIC GAMES, Inc.,)	
)	
Counter-Defendant.)	
)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS

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8:00:52AM

Thank you.

8:00:52AM

THE COURT: Okay. And then -- sir, your name again?

8:00:52AM

MR. DIESSEL: Ben Diessel, Your Honor.

8:00:52AM

THE COURT: Hmm. Okay. I didn't have you on my list. How do you spell your last name?

8:00:52AM

MR. DIESSEL: That's D as in David, i-e, double s-e-l.

8:00:52AM

THE COURT: Okay. Good morning.

8:01:18AM

MR. DIESSEL: Morning.

8:01:18AM

THE COURT: Mr. Sweeney, good morning.

8:01:19AM

Mr. Rudd, good morning.

8:01:21AM

MR. RUDD: Good morning.

8:01:21AM

THE COURT: On the Apple side.

8:01:24AM

MR. DOREN: Good morning, Your Honor. Richard Doren for Apple. And we're joined this morning by Heather Grenier, the head of commercial litigation.

8:01:31AM

THE COURT: Okay. Good morning. Welcome back.

8:01:35AM

MS. DUNN: Good morning, Your Honor, Karen Dunn for Apple.

8:01:38AM

THE COURT: Good morning.

8:01:38AM

MS. RICHMAN: Good morning, Your Honor. Cynthia Richman for Apple.

8:01:43AM

THE COURT: Good morning.

8:01:44AM

MS. DEARBORN: And good morning, Your Honor.

8:01:45AM

Meredith Dearborn for Apple.

8:01:47AM **THE COURT:** Good morning. Ms. Dearborn.

8:01:48AM Mr. Schiller, good morning.

8:01:49AM **MR. SCHILLER:** Good morning, Your Honor.

8:01:51AM **THE COURT:** And Mr. Spalding.

8:01:53AM **MR. SPALDING:** Good morning, Your Honor.

8:01:55AM **THE COURT:** Good morning.

8:01:55AM Okay. Then we have -- I see Ms. Lawyer in the back. I'm going to remember your name.

8:02:00AM **MS. LAWYER:** Good morning, Your Honor.

8:02:02AM **THE COURT:** And then we have from the designated pool reporters, do we have Sebastian Herrera from *The Wall Street Journal*. Good morning, sir.

8:02:09AM And then Kellen Browning?

8:02:12AM **MR. BROWNING:** Morning, Your Honor.

8:02:14AM **THE COURT:** Good morning. From the *New York Times*.

8:02:15AM And then from the -- from the class action counsel,

8:02:21AM Mr. Rifkin, are you back? Yes you are.

8:02:25AM **MR. RIFKIN:** Good morning, Your Honor.

8:02:26AM **THE COURT:** Good morning.

8:02:26AM **MR. RIFKIN:** Good morning.

8:02:29AM **THE COURT:** Then we have one other person -- Do we know who that is?

8:02:30AM **THE CLERK:** It's the witness back there.

8:02:37AM **THE COURT:** Oh. I didn't -- could not see you that far away. Okay.

8:02:40AM

Good morning.

8:02:46AM

So what do we have in terms of administrative issues to address, if anything, this morning?

8:02:50AM

Ms. Forrest?

8:02:53AM

MS. FORREST: Yes, Your Honor.

8:02:53AM

One very brief just FYI for the court. The parties have conferred with regard to whether class and developer counsel can have access to the sealed portions of the transcript which have already occurred, should they desire to order those.

8:03:04AM

And the parties agree that because they are under the protective order, they may.

8:03:07AM

THE COURT: Okay. So so ordered.

8:03:11AM

Mr. Doren, you agree?

8:03:14AM

MR. DOREN: Agreed, Your Honor.

8:03:15AM

THE COURT: Okay. Any --

8:03:20AM

(Simultaneous colloquy.)

8:03:20AM

THE COURT: Go ahead.

8:03:21AM

MR. DOREN: One other point. We had a discussion this morning about the written directs of expert witnesses. And if it's acceptable to the court, the parties are working through the negotiations around the evidence and around other redactions. And rather than have them admitted conditionally, we thought the parties would complete those negotiations and then move to admit after we know what any issues are next Monday -- to admit the written directs as -- as a group.

8:03:23AM

8:03:26AM

8:03:29AM

8:03:32AM

8:03:37AM

8:03:39AM

8:03:43AM

8:03:48AM **THE COURT:** Okay. So the -- I guess the only question is whether or not I will need to weigh in. If I do, then -- you know, then they're not going to -- they won't get admitted on Monday.

8:04:08AM **MR. DOREN:** Agreed, Your Honor.

8:04:08AM But we think we can at least present to the court a -- a package with all issues framed to the extent issues remain.

8:04:17AM **THE COURT:** Okay.

8:04:17AM **MS. FORREST:** Agreed, Your Honor. That's -- that's the -- the intention.

8:04:21AM **THE COURT:** All right. So -- so that's fine.

8:04:24AM I had -- I've got trial order number 5 in draft form, which I will amend to reflect that particular agreement.

8:04:34AM What I was going to ask for in the next trial order, because we keep getting these kind of ongoing requests to seal, I can tell you usually motions for reconsideration are denied unless there's something really very different happening that we totally missed.

8:04:56AM But my plan was to order that with respect to exhibits -- and we can carve this out, I guess -- that we receive any motions by 6:00 p.m. on Friday, any third-party motions by the next day so that we have the weekend to resolve them.

8:05:17AM Given that this week's entire -- entirely experts or pretty much entirely experts, I'm not sure that that makes -- that there will be much, but I am trying to get ahead of some

8:05:29AM

of the constant waves that we're seeing.

8:05:33AM

MS. FORREST: That timing, Your Honor, we can certainly, obviously, meet. And we apologize for the -- for the wave. Some of this information has come only to our awareness late, but we will comply with that timing.

8:05:42AM

MR. DOREN: That's fine, Your Honor.

8:05:47AM

THE COURT: Okay. All right. Thank you very much.

8:05:51AM

Anything else?

8:05:53AM

MR. DOREN: No, Your Honor.

8:05:54AM

MS. FORREST: No, Your Honor.

8:05:55AM

THE COURT: Okay. I don't have anything else either.

8:05:57AM

And I didn't admit very many exhibits yesterday, so we'll

8:06:03AM

defer going over exhibits.

8:06:07AM

Professor Athey, you want to come back to the stand? We can get started a little bit early.

8:06:14AM

Good morning.

8:06:42AM

THE WITNESS: Good morning, Your Honor.

8:06:43AM

THE COURT: Okay. So you should have some binders up there. Before we get started, do you have the binders from yesterday?

8:06:49AM

THE WITNESS: Yes, these -- there were two binders.

8:06:51AM

I have them.

8:06:52AM

THE COURT: Okay.

8:06:53AM

I'll remind you, you're still under oath.

8:06:56AM

THE WITNESS: Yes.

ATHEY - CROSS (RESUMED) / DUNN

8:06:58AM

THE COURT: Ms. Dunn, you may proceed with your

8:07:01AM

cross.

8:07:03AM

MS. DUNN: Thank you, Your Honor.

8:07:03AM

For the court reporter, Karen Dunn for Apple.

9:57:46AM

SUSAN ATHEY,

9:57:46AM

called as a witness for the PLAINTIFF, having been duly sworn,

9:57:46AM

testified as follows:

8

CROSS-EXAMINATION (RESUMED)

9

BY MS. DUNN:

10

Q. Welcome back, Dr. Athey. Good morning.

8:07:08AM

A. Good morning.

12

Q. So yesterday we left off talking about how the web browser
is middleware. Do you remember that?

8:07:15AM

A. Yes.

8:07:15AM

Q. And you have said that third-party app stores are
middleware.

8:07:19AM

You've said that, correct?

8:07:22AM

A. Correct.

8:07:23AM

Q. All right.

8:07:23AM

And a store within a store is also middleware, correct?

8:07:27AM

A. Yes. To -- to be clear, you know, middleware can have
many characteristics so, you know, different types of
middleware will -- will function in different ways, so I'm not
trying to define "middleware" by one of those specific
examples.

8:07:41AM

8:07:43AM

8:07:44AM Q. Okay. But to the extent that you use this --

8:07:47AM A. Yes.

8:07:47AM (Simultaneous colloquy.)

8:07:48AM **THE COURT:** One at a time, please.

8:07:50AM **BY MS. DUNN:**

8:07:51AM Q. To the extent that you use this phrase, you would include store within a store within your general notion of middleware, correct?

8:07:58AM A. Yes.

8:08:01AM Q. And in your opinion, app stores can differentiate by specializing in narrow categories of content, like games, correct?

8:08:07AM A. Yes.

8:08:11AM Q. And in your report and in your written testimony, you provide three case study examples. One is Steam. One is GameClub. And one is Epic Game Store, correct?

8:08:12AM A. Yes.

8:08:13AM Q. And in your report and in your written testimony, you provide three case study examples. One is Steam. One is GameClub. And one is Epic Game Store, correct?

8:08:22AM A. Yes.

8:08:27AM Q. All right.

8:08:28AM So we'll talk about Steam and GameClub in a moment, but first, to be clear, you describe Epic Game Store as a personalized gaming-focused multi-platform app store; is that right?

8:08:39AM A. Yes.

8:08:43AM Q. And in your written direct testimony, you say that Apple excludes multi-platform app stores like Steam, correct?

8:08:50AM

ATHEY - CROSS (RESUMED) / DUNN

8:08:54AM

A. Yes.

8:08:58AM

Q. And in your written direct testimony, you say Steam is a specialized multi-platform app store. Users can store their purchase content in their Steam Library, store their payment methods in their Steam Wallet, chat and text with other users in real time with Steam Chat, and that by enabling users to access games and purchase game content, Steam reduces users' switching and mixing and matching costs, correct?

8:09:27AM

A. I don't have it in front of me, but that sounds -- that -- yes, I agree with the content.

8:09:34AM

Q. Great.

8:09:35AM

And I'm not --

8:09:35AM

A. Yeah.

8:09:36AM

Q. It's just for time.

8:09:37AM

A. Yes.

8:09:37AM

Q. I would be happy to put it up for you.

8:09:39AM

A. No problem.

8:09:40AM

Q. And in your direct testimony, you said that this is available on the Mac, on Windows and on Linux, correct?

8:09:42AM

A. Yes.

8:09:45AM

Q. Okay. So I'd like to now put on the screen a slide that shows what happens when you search Steam in Apple's App Store.

8:09:58AM

And I'm asking Mr. Spalding to put that on the screen.

8:10:01AM

(Demonstrative published.)

8:10:02AM

MS. DUNN: I don't know if your screen looks like

ATHEY - CROSS (RESUMED) / DUNN

8:10:04AM

mine, but the color seems --

8:10:07AM

THE COURT: Color seems off.

8:10:08AM

MS. DUNN: -- very purple.

8:10:11AM

THE WITNESS: Thank you. I see it. Thank you.

8:10:13AM

BY MS. DUNN:

8:10:14AM

Q. Okay.

8:10:16AM

And I don't know if you can see this, given the --

8:10:21AM

THE COURT: Is that us, or is that you, Mr. Spalding?

8:10:25AM

MR. SPALDING: I believe the court.

8:10:31AM

THE COURT: Okay. We'll try to --

8:10:34AM

Do you have a physical copy of this one, Ms. Dunn?

8:10:39AM

MS. DUNN: We do.

8:10:39AM

This is at -- at Defense Exhibit 5621 in your binder.

8:10:49AM

THE COURT: We'll try to fix that.

8:10:52AM

MS. DUNN: Thank you, Your Honor.

8:10:52AM

(Exhibit published.)

8:10:53AM

MS. DUNN: All right. So, Dr. Athey, if you turn to

8:10:56AM

Defense Exhibit 5621 in your binder.

8:11:00AM

A. Yes.

8:11:02AM

Q. So if you look at this screenshot, you can see that we

8:11:05AM

search "Steam" in the Apple App Store. "Steam" is in the

8:11:09AM

search bar. And you can see that what comes up are three

8:11:12AM

Steam native apps available in the App Store. One is called

8:11:16AM

Steam Mobile. One is called Steam Link. And the third is

8:11:20AM

called Steam Chat.

ATHEY - CROSS (RESUMED) / DUNN

8:11:20AM

Do you see that?

8:11:21AM

A. Yes.

8:11:23AM

Q. Okay. Now, if you'll turn to Defense Exhibit 5616.

8:11:34AM

(Exhibit published.)

8:11:35AM

BY MS. DUNN:

8:11:36AM

Q. This is a screenshot from Steam's website about Steam

8:11:39AM

Mobile. And it describes Steam Mobile, which it also calls

8:11:49AM

"the Steam App," and you can see in the screenshot there's a

8:11:54AM

picture of an iPhone and an Android phone.

8:11:57AM

Do you see that?

8:11:57AM

A. Yes.

8:11:58AM

Q. All right. It also says you can download the Steam App on

8:12:02AM

the App Store and on Google Play.

8:12:04AM

Do you see there at the bottom?

8:12:07AM

A. Yes.

8:12:08AM

Q. Okay. And towards the top, it says that with the app, you

8:12:12AM

can manage your account, shop, and stay up to date with games

8:12:16AM

in the community.

8:12:17AM

Do you see that?

8:12:18AM

A. Yes.

8:12:22AM

Q. Okay. And so prior to your report, were you aware that

8:12:27AM

this app existed?

8:12:45AM

A. (Reviewing document.)

8:12:45AM

Sorry. I'm just trying read all the -- all the material

8:13:19AM

here with the different apps. These --

8:13:21AM Q. I'm just --
8:13:22AM A. I'm sorry.
8:13:23AM Q. -- asking at this point about the Steam Mobile app.
8:13:25AM Were you aware prior to your report that this app existed?
8:13:33AM A. (Reviewing document.)
8:13:33AM Yes.
8:13:40AM Q. Yet you did not mention this in your report or in your
8:13:43AM testimony; is that correct?
8:13:44AM A. This -- sorry.
8:13:50AM Q. Dr. Athey, this is just a "yes" or "no."
8:13:52AM This is not mentioned in your report, and it was not
8:13:55AM mentioned in your testimony, either your written direct
8:13:58AM testimony or in your testimony yesterday, correct?
8:14:00AM A. My testimony describes the functionality, but I -- I
8:14:09AM didn't specifically describe this app.
8:14:11AM Q. Right. You did not mention that there is an app in the
8:14:14AM App Store called Steam Mobile, correct?
8:14:16AM A. Correct.
8:14:18AM Q. And you did not mention that there was an app in the App
8:14:20AM Store called Steam Link, correct?
8:14:23AM A. Correct.
8:14:24AM Q. And you did not mention, just to finish this out, that
8:14:27AM there's an app in the App Store called Steam Chat, correct?
8:14:31AM A. Correct.
8:14:31AM Q. And yet you say you were aware of this before yesterday,

8:14:35AM

correct?

8:14:35AM

A. Yes.

8:14:36AM

Q. Okay.

8:14:37AM

All right. So --

8:14:40AM

THE COURT: So, Ms. Stone, I -- I'm being told that we have to restart the system, so let's put a pause on your clock. And we should go ahead and reboot it.

8:14:52AM

THE CLERK: Okay. All right.

8:14:53AM

MS. DUNN: Thank you, Your Honor.

8:14:57AM

(Pause in the proceedings.)

8:15:31AM

THE COURT: So while we're waiting here, if I had a jury, I would tell some kind of joke and they would laugh because I'm a judge and I'm -- even though I'm not funny.

8:15:41AM

But I do want to correct for the record -- I know there are lots -- lots of people are taking -- they're all trying to figure out who all of us are. I don't want to be in trouble with my son, so I'll tell everybody he's an aerospace engineer, not an aeronautical engineer. I'd like the record globally to be corrected. He's an aerospace engineer. I misspoke one day and, apparently, that got picked up, so really don't want to be in trouble with him.

8:16:09AM

So okay. Now we have our thing back.

8:16:14AM

Thanks for that.

8:16:15AM

MS. DUNN: Thank you, Your Honor.

8:16:16AM

THE COURT: All right. Ms. Dunn, proceed.

ATHEY - CROSS (RESUMED) / DUNN

8:16:18AM

BY MS. DUNN:

8:16:19AM

Q. All right. Dr. Athey, are you aware that users can buy games and manage their Steam Wallet account through this app?

8:16:35AM

A. So this -- this app allows you, as it says on the -- on the exhibit, to browse the Steam catalog of Windows, Mac, and Linux titles from your phone.

8:16:41AM

Q. Right. I'm not asking you to read the screen. I'm just asking you to tell me whether you're aware that users can buy games and manage their Steam Wallet account through this app. That's the question.

8:16:51AM

A. And -- I think the clarification is that they -- they can't buy games -- they can't buy iOS games. They can buy Windows, Mac, and Linux games, which are games.

8:17:00AM

Q. Right.

8:17:03AM

And you're aware, aren't you, even though it doesn't say so here, that users can manage their Steam Wallet account through this app, correct?

8:17:06AM

A. Yes.

8:17:10AM

Q. All right.

8:17:14AM

Let's move to the Steam Link app in the App Store, so I'll ask you to turn to Defense Exhibit 5617.

8:17:21AM

(Exhibit published.)

8:17:28AM

BY MS. DUNN:

8:17:44AM

Q. Now, 5617 -- excuse me -- is a Tweet that Steam sent out when they launched Steam Link. This Tweet from Steam says the

ATHEY - CROSS (RESUMED) / DUNN

8:17:53AM Steam Link app is now available for free on all iOS and -- for
8:17:57AM all iOS and Apple TV users. The app allows gamers to stream
8:18:04AM their Steam library to their iPhone, iPad, and Apple TV.

8:18:08AM And you can see on this Tweet that there's a picture of a
8:18:12AM person playing Steam games on their iPhone using a controller
8:18:16AM attachment, which are available in the market today.

8:18:18AM You see that, correct?

8:18:19AM **A.** Yes.

8:18:21AM **Q.** Okay.

8:18:21AM And are you aware that through Steam Link, iOS users can
8:18:30AM play Steam games on their iPhones and iPads through Steam
8:18:33AM Link, which is an app on iOS.

8:18:36AM You're aware of that.

8:18:40AM **A.** Yes.

8:18:41AM **Q.** Right.

8:18:41AM And you said that you were aware prior to yesterday that
8:18:45AM this existed; is that -- that's what you said?

8:18:47AM **A.** Yes.

8:18:49AM **Q.** Okay.

8:18:50AM All right. Will you turn to Exhibit 5622.

8:18:54AM (Exhibit published.)

8:19:02AM **BY MS. DUNN:**

8:19:03AM **Q.** All right. 5622 is a screenshot also from the Steam
8:19:06AM website, and it describes Steam Link in more detail. And it
8:19:10AM says -- if you look under the word "install," it says "install

8:19:13AM the App to play your Steam games."

8:19:15AM And then in extremely small print, it says under "Steam

8:19:20AM Link," "stream games from your computer with Steam."

8:19:25AM Do you see that?

8:19:25AM **A.** Yes, I can see that.

8:19:31AM **Q.** Okay. That's in -- in the -- it's written there in the

8:19:34AM mobile device. You see that?

8:19:35AM **A.** I can see it, yes.

8:19:37AM **Q.** Okay.

8:19:37AM And on the right, it says "extend your Steam gaming

8:19:42AM experience to your mobile device, TV, or other PC. All you

8:19:46AM need is a local network or an Internet connection. In

8:19:50AM addition, Steam Link App now supports remote play together.

8:19:54AM Now you can join games hosted on a friend's PC just by

8:19:59AM clicking a link," correct?

8:20:00AM You see that.

8:20:02AM **A.** Yes.

8:20:02AM **Q.** Okay.

8:20:02AM And this also was not mentioned in your report, your

8:20:05AM written direct testimony, or your testimony yesterday,

8:20:07AM correct?

8:20:08AM **A.** So my report describes the overall set of features

8:20:18AM associated with Steam. But the -- the details of -- of

8:20:26AM streaming from your own PC on to your device, I -- I don't

8:20:32AM believe I've -- I put in those details, although I'd need to

ATHEY - CROSS (RESUMED) / DUNN

8:20:36AM

check to be sure.

8:20:37AM

Q. Right.

8:20:37AM

And you -- all those details you mentioned, the ones that you described, like using Steam Wallet, purchasing games, playing your Steam games, that you can do through these apps in the App Store, that was not mentioned in your report.

8:20:40AM

There's no place where you say Steam has apps in the App Store, correct?

8:20:44AM

A. So I would need to review to see exactly what's there.

8:20:50AM

I've referenced the -- the Steam documentation and so on.

8:20:53AM

But I would need to -- to -- to double-check to see exactly which details are -- are included.

8:21:00AM

Q. Okay. Do you have any idea how many times a day Steam Link is downloaded?

8:21:07AM

A. I don't know that number now.

8:21:13AM

Q. Okay.

8:21:20AM

If you'll turn to Defense Exhibit 5601.

8:21:22AM

(Exhibit published.)

8:21:24AM

BY MS. DUNN:

8:21:28AM

Q. -- in your binder. And if you -- it's an article called "75 Steam statistics from 2019 and 2020."

8:21:34AM

This is actually one of the source materials for your report. It's footnote 62 to paragraph 36, I believe.

8:21:40AM

And according to this source material, it says that Steam Link, which allows users -- this is on page 3 -- it says that

8:22:00AM

ATHEY - CROSS (RESUMED) / DUNN

8:22:06AM Steam Link, which allows users to play games on their mobile devices, has been installed 2 million times.

8:22:10AM Do you see that?

8:22:12AM **A.** Yes.

8:22:16AM **Q.** And right beneath that, it says, on average Steam Link is downloaded at around 52,000 times daily.

8:22:22AM Do you see that?

8:22:23AM **A.** Yes.

8:22:24AM **Q.** Okay.

8:22:25AM And so you don't have any reason to -- to disagree with that, do you?

8:22:29AM **A.** No.

8:22:34AM **Q.** Okay. If we could go to Defense Exhibit 5623.

8:22:38AM (Exhibit published.)

8:22:39AM **BY MS. DUNN:**

8:22:41AM **Q.** This is a screenshot of Steam Chat also from the Steam website. This is another app that you can download from the App Store and on Google Play.

8:22:53AM You can see the icons that say "download on the App Store" and "get it Google play."

8:22:57AM You see that?

8:23:00AM **A.** Yes.

8:23:00AM **Q.** All right. And Steam Chat, it says, is a lightweight app focused on chatting with friends and groups.

8:23:04AM You see that?

8:23:07AM

A. Yes.

8:23:08AM

Q. It offers rich chat, which always makes me think of Mr. Doren.

8:23:14AM

Do you see that?

8:23:15AM

A. I'm sorry. Rich chat.

8:23:19AM

Q. Rich chat.

8:23:19AM

A. Yes. Yes.

8:23:20AM

Q. Okay.

8:23:20AM

And with Steam -- with the Steam Chat App, users can accept invites and then play with their friends in Steam Link on their iPhone.

8:23:29AM

Are you aware of that?

8:23:31AM

A. Yes.

8:23:32AM

Q. Okay. And, in fact, that's what's happening in this image over here on the iPhone, it says, "Ben from school has invited you to play, and all you need to do is click that link and you're in the game."

8:23:46AM

Do you see that?

8:23:49AM

A. I see that you can accept the invite from your personal computer, PC.

8:23:53AM

Q. Right.

8:23:53AM

So you're not aware that if you click the link, you're in the game?

8:23:56AM

A. If -- if I have a PC with me. Not if I'm at school if -- if I'm a kid or if I'm in the bus. But if I was using a PC

8:24:04AM

8:24:10AM

and had that available.

8:24:13AM

Q. Well, Dr. Athey, you've never used this, correct?

8:24:19AM

A. I've used Steam. But I haven't used Steam Chat.

8:24:23AM

Q. Right. Or Steam Link.

8:24:23AM

And if you had used them, you would know actually that you

8:24:27AM

don't need your PC with you. Your PC could be anywhere to do

8:24:31AM

this, so --

8:24:34AM

A. So -- I'm sorry. I just -- I'm reading from the side,

8:24:37AM

"you can accept this invite from your PC." So the -- the game

8:24:42AM

is being run in the PC. The game -- the PC needs to be on if

8:24:47AM

it's -- you know, to -- to use this functionality.

8:24:51AM

So you need to have the -- if you're streaming a game from

8:24:56AM

your PC, the PC is involved.

8:25:00AM

Q. But it -- but you said --

8:25:02AM

A. Correct.

8:25:02AM

Q. -- it needs to be with you. And that is not correct.

8:25:05AM

Are you aware of that?

8:25:06AM

A. So if it's -- you need to be able to have it on. So if

8:25:11AM

you -- if -- yeah, if you have a laptop, for example, you

8:25:15AM

would need to be able to turn on your laptop, so I suppose if

8:25:19AM

you -- you know, if you've -- if laptop isn't being used by

8:25:25AM

anybody else and it's been -- it's been left on, that would be

8:25:28AM

a different scenario.

8:25:29AM

But if you're -- if you were carrying your laptop -- if

8:25:33AM

your laptop is in your locker or if your laptop is in your

ATHEY - CROSS (RESUMED) / DUNN

8:25:37AM briefcase and it's off, then you can't -- you -- you would need to make it available for that purpose.

Q. Right.

8:25:43AM And I'm just saying you had said you need to have it with you. That's not correct.

8:25:48AM And if you don't know, it's okay.

8:25:50AM A. Sorry. So you --

8:25:54AM Q. I'm just asking --

8:25:55AM A. Yes.

8:25:56AM Q. -- whether you know that you don't need to have it with you?

8:26:00AM A. Not necessarily. Depends on the circumstance.

8:26:02AM **THE COURT:** She's a professor at Stanford. She can -- there isn't any harassment going on here, Mr. Even, so --

8:26:10AM **MR. EVEN:** Okay.

8:26:11AM **THE COURT:** So she can the answer questions, or she can argue the way she is. There's nothing objectionable. This is cross-examination.

8:26:19AM **MS. DUNN:** Thank you, Your Honor.

8:26:20AM Q. Dr. Athey, do any other companies have technologies like Steam Link?

8:26:33AM A. So if you're asking is it possible -- if you're talking about, like, a functionality to do remote desktop, yes.

8:26:36AM Q. Okay.

ATHEY - CROSS (RESUMED) / DUNN

8:26:41AM And so you must be aware that Playstation and XBox both have native Apps on the iOS that allow playing of their games.

8:26:52AM You're aware of that?

8:26:53AM **A.** Again, that's a -- that's a broad statement, so there are specific ways that you could, for example, play a game on a device that you own and -- and through a -- this kind of remote-desktop-type functionality.

8:27:10AM **Q.** Okay.

8:27:15AM I'd just like to put on the screen, and then we can move on, DX5624. This is Playstation's remote play from Playstation.com.

8:27:27AM Do you see that?

8:27:27AM (Exhibit published.)

8:27:28AM **THE WITNESS:** Yes.

8:27:28AM **BY MS. DUNN:**

8:27:28AM **Q.** Okay.

8:27:28AM And then if we can just put up Defense Exhibit 5620.

8:27:33AM (Exhibit published.)

8:27:33AM **BY MS. DUNN:**

8:27:34AM **Q.** This is Microsoft's XBox remote play, which shows somebody playing with a controller on a iPhone.

8:27:40AM Do you see that?

8:27:41AM **A.** Yes.

8:27:41AM **Q.** Okay.

8:27:42AM All right. Dr. Athey, moving on from Steam, your third

8:27:46AM example is GameClub, which is currently available as a native
8:27:49AM App on iOS, correct?
8:27:51AM **A.** Yes.
8:27:53AM **Q.** All right.
8:27:53AM And if you'll turn in your binder to Defense Exhibit 5608.
8:27:58AM (Exhibit published.)
8:28:00AM **BY MS. DUNN:**
8:28:00AM **Q.** On page 2.
8:28:01AM **A.** (Reviewing document.)
8:28:09AM **Q.** And I'm just reading from the description here. This is
8:28:11AM from GameClub's press kit.
8:28:14AM They say that GameClub is the all-you-can-play
8:28:17AM subscription home for mobile's top premium games, delivering
8:28:21AM unlimited exclusive access to over a hundred universally
8:28:25AM acclaimed titles, playable on both iOS and Android with new
8:28:30AM games added every week. These games are optimized for the
8:28:34AM latest mobile devices and have no apps or in-app purchases as
8:28:39AM part of a single subscription that can be shared with up to 12
8:28:43AM family members.
8:28:43AM And you can see at the end, that costs 4.99 a month, and a
8:28:48AM GameClub subscription, it says, is completely cross-platform
8:28:53AM with a single log-in that works anywhere.
8:28:55AM Do you see that?
8:28:55AM **A.** Yes. I believe that's the way I described it in my
8:28:59AM report.

ATHEY - CROSS (RESUMED) / DUNN

8:29:00AM

Q. I agree with that.

8:29:02AM

You also know that one GameClub account carries over across both Android and iOS, correct?

8:29:10AM

A. Yes, that's a key feature.

8:29:12AM

Q. Right.

8:29:12AM

And you also know that GameClub has family-sharing, which means a user can buy a game on iOS, and then their kids can play on Android or vice versa, correct?

8:29:18AM

A. Absolutely. Again, that's a key feature.

8:29:24AM

Q. Right.

8:29:25AM

And GameClub is a direct competitor to Apple Arcade, and GameClub is available in the App Store today, correct?

8:29:35AM

You agree with that.

8:29:37AM

A. Yes.

8:29:40AM

Q. You take --

8:29:40AM

A. I'm sorry. I -- it's -- I mean, I didn't perform a full analysis of the substitution between the two, but, you know, at a high level, yes.

8:29:52AM

Q. Okay.

8:29:52AM

But in your deposition, you agreed that GameClub competes directly with Apple Arcade.

8:29:57AM

You remember that?

8:29:59AM

A. Yes.

8:30:00AM

Q. Okay.

8:30:00AM

You do take issue, however, with the requirement that each

8:30:03AM game be individually downloaded, which you refer to as a friction.

8:30:06AM That's true.

8:30:07AM **A.** Correct.

8:30:09AM **Q.** Okay.

8:30:10AM So first of all, are you aware that Apple Arcade, Apple's competing product, also requires individual download?

8:30:19AM **A.** I'm -- I'm sorry. You're -- you're asking whether Apple Arcade's -- sorry.

8:30:37AM Can you restate the question?

8:30:39AM **Q.** I'm happy to. It was, I'm sure, poorly formed.

8:30:42AM So Apple has a competing product called Apple Arcade?

8:30:45AM **A.** Yes.

8:30:46AM **Q.** And you're aware that Apple Arcade also requires individual download of games.

8:30:49AM **A.** So -- yes.

8:31:15AM **Q.** And your testimony is that there are unnecessary frictions because there might be large incremental costs between one click and two clicks, correct?

8:31:22AM **A.** Yes.

8:31:29AM **Q.** Right.

8:31:29AM But you've done nothing to measure what the cost might be of those frictions that you've described, correct?

8:31:32AM **A.** Not specifically for the purpose of this case.

8:31:35AM **Q.** There's some measurement that you did that you didn't

ATHEY - CROSS (RESUMED) / DUNN

8:31:45AM

include?

8:31:45AM

A. I guess if the question is, you know, have I ever measured frictions from -- from clicks or other types of frictions in -- in my research or in my industry experience, you know, yes, I have.

8:32:01AM

But I didn't perform that specifically for this case.

8:32:04AM

Q. Okay. So you agree that they're not part of your testimony.

8:32:08AM

A. I agree with that. Yes.

8:32:09AM

Q. Okay.

8:32:09AM

And at the time that you submitted your report and by the time of your deposition, you hadn't ever used GameClub, correct?

8:32:16AM

A. No, I've not used GameClub.

8:32:19AM

Q. Okay.

8:32:19AM

So I'm going to ask Mr. Spalding to pull up on the screen GameClub.

8:32:27AM

(Demonstrative published.)

8:32:29AM

BY MS. DUNN:

8:32:29AM

Q. And we found a game in here that we thought looked good.

8:32:33AM

It's called Hatch. And I'm going to ask Mr. Spalding to click on it within GameClub. So if he clicks "play now," we go -- what happens is -- that's the -- the "play now" is what you click, and then you're directed in the App Store to the app for Hatch so that you can individually download it.

8:32:37AM

8:32:42AM

8:32:46AM

8:32:53AM

8:32:56AM Do you see that?

8:32:57AM **A.** Yes.

8:33:00AM **Q.** All right.

8:33:01AM And I want to talk to you, Dr. Athey, just for a few

8:33:04AM minutes about this screen that you see when you -- when you

8:33:07AM click to individually download.

8:33:08AM So you can see a page from the App Store pops up. And

8:33:11AM then at the top, there's information for the users about

8:33:15AM ratings, about what age the app is appropriate for. Here it

8:33:19AM says "four plus." What kind of game it is. Here it says it's

8:33:24AM simulation game. Who the developer is.

8:33:26AM And if Mr. Spalding scrolls to the right, we'll see -- you

8:33:29AM can also see what language it's in and how much size it's

8:33:33AM going to take up on your device.

8:33:36AM Do you see that?

8:33:36AM (Demonstrative published.)

8:33:36AM **THE WITNESS:** Yes.

8:33:36AM **BY MS. DUNN:**

8:33:36AM **Q.** Okay. And if you scroll down, you can see if there's

8:33:39AM something new in the game. You can see a preview. You can

8:33:42AM see the actual ratings and reviews. There's a section on app

8:33:48AM privacy, and -- and this is common to apps in the App Store,

8:33:52AM where it tells you what privacy issues might be implicated by

8:33:58AM the app.

8:33:59AM If you scroll down, Mr. Spalding, you can see that there's

ATHEY - CROSS (RESUMED) / DUNN

8:34:04AM other information that's listed, including the seller of the game, the size, the category, compatibility -- this says it works on the iPhone -- again languages, the age rating, whether in-app purchase is involved, what's the status of the copyright.

8:34:23AM (Demonstrative published.)

8:34:23AM **BY MS. DUNN:**

8:34:23AM Q. There's even a link for the developer website which you can click and it would go there, and then privacy policy.

8:34:32AM And at the bottom, you can see if there are more games by that developer.

8:34:38AM Do you see all of that?

8:34:39AM A. Yes.

8:34:40AM Q. Okay.

8:34:40AM And you would agree with me, I presume, that there may be a benefit to users in receiving this information, like for example, whether the game is appropriate for ages four and up, correct?

8:34:57AM A. (Reviewing document.)

8:34:57AM So if -- if you're asking is -- about the way in which this information is presented, I think there can be many ways to make sure that users have this information. The information itself is useful as -- as far as -- as far as I know.

8:35:13AM Q. Right.

ATHEY - CROSS (RESUMED) / DUNN

8:35:14AM I -- I'm not -- I -- that's fair. I'm not asking you
8:35:19AM whether there's a different way to do it or a way you might
8:35:22AM prefer. I'm just asking whether you can acknowledge that
8:35:24AM there's a benefit to users in being able to receive this
8:35:27AM information.

8:35:31AM **A.** Receiving the information is -- is, from my -- from my
8:35:38AM knowledge, these -- this kind of information would be valuable
8:35:41AM to consumers, and having it well organized and -- and -- would
8:35:49AM also be something that users might value; although I haven't
8:35:53AM specifically analyzed, you know, individual pieces of this
8:35:57AM information.

8:35:57AM **Q.** Right. And I appreciate that.

8:35:58AM And I think you also might acknowledge that this also
8:36:04AM enables the developer to advertise other features to talk
8:36:10AM about other games it has and to convey information to the
8:36:14AM user.

8:36:14AM You would agree with that, correct?

8:36:16AM **A.** So I think the -- there's constraints on the -- here on
8:36:30AM the way that the developer provides that information. But the
8:36:33AM screen includes that information in -- in this case.

8:36:37AM **Q.** Including a link to the develop -- developer's own
8:36:40AM website, correct?

8:36:41AM You saw that part.

8:36:42AM **A.** Yes.

8:36:47AM **Q.** Okay.

ATHEY - CROSS (RESUMED) / DUNN

8:36:49AM All right. Dr. Athey, your opinion is critical on
restrictions to interoperability.

8:36:53AM (Simultaneous colloquy.)

8:37:02AM **BY MS. DUNN:**

8:37:02AM **Q.** Strike that.

8:37:03AM Your opinion is critical of restrictions on
interoperability.

8:37:07AM

8:37:11AM **A.** That -- that's a broad statement, but the -- so I -- I'm
not -- I haven't said that operating systems need to be the
theme if -- if that's what you're asking.

8:37:24AM But there are certain types of interoperability that would
be beneficial.

8:37:29AM

8:37:33AM **Q.** Okay. So you say the inability to mix and match across
devices with different operating systems because of limited
interoperability and synchronization of apps and services
creates what I call an app barrier to mixing and matching,
correct?

8:37:39AM

8:37:42AM **A.** Yes.

8:37:45AM

8:37:51AM **Q.** And that seems critical of restrictions on
interoperability, does it not?

8:37:54AM

8:37:55AM **A.** Yes.

8:37:59AM

8:38:01AM **Q.** All right.

8:38:01AM And in your written testimony, you've said users do not
benefit from frictions to switching.

8:38:06AM

8:38:08AM Do you remember that sentence in your written testimony?

8:38:12AM

A. Yes.

8:38:13AM

Q. At paragraph 52.

8:38:15AM

A. Okay.

8:38:15AM

Q. Okay.

8:38:15AM

And that's not a qualified statement you make in paragraph 52, which I can show to you.

8:38:25AM

A. So the -- the sentence is in the context of the -- of the setting that I'm describing.

8:38:35AM

Q. All right.

8:38:35AM

So you disagree, Dr. Athey, that technical --

8:38:41AM

technological incompatibilities can increase competition by providing consumers a choice.

8:39:02AM

A. So that's a -- to -- to state -- to state the proposition would be that consumers can be offered choices of -- between different technologies, and having different technologies is a potential benefit for consumers.

8:39:26AM

Q. We definitely agree on that.

8:39:28AM

My question is whether you disagree with that

8:39:32AM

technological incompatibilities can increase competition by providing consumers a choice.

8:39:49AM

A. So a sentence like that would need to be taken in context.

8:39:52AM

So are you talking about incompatibility for its own sake so the -- the phrasing of the sentence says "by providing consumers a choice," which I think implies that there's something that the consumer would choose, that there would --

8:40:00AM

8:40:10AM

something that they would value?

8:40:12AM

So, again, I -- I think if I was trying to -- that's not a very precisely worded sentence without context around it, but -- but I think I answered your question.

8:40:30AM

Q. Sort of.

8:40:32AM

So what I'm saying is technological incompatibilities can increase competition because they give consumers a choice.

8:40:42AM

Do you agree with that?

8:40:44AM

A. I guess with the word "can" would -- could -- would refer to the context in which a sentence like that is being stated, so yes.

8:41:06AM

Q. All right.

8:41:06AM

In your opinion, a failure to provide interoperability could be illegal conduct. That's your opinion.

8:41:18AM

A. There are situations -- and -- and my understanding is there are -- have been situations where a dominant firm has been found to engage in illegal conduct around issues of interoperability.

8:41:36AM

Q. Right.

8:41:36AM

And it's your opinion that forced interoperability could be a remedy in some antitrust cases, correct?

8:41:41AM

A. I want to make sure we're clear on the term "interoperability," but --

8:41:49AM

THE COURT: Mr. Even, if you have an objection, just say it "objection."

8:41:52AM

8:41:54AM

MR. EVEN: Okay, Your Honor.

8:41:55AM

THE COURT: Because Ms. Dunn isn't looking behind herself and she can't see you standing.

8:42:00AM

MR. EVEN: I will do, Your Honor. I was just trying not to interrupt Ms. Dunn, but I do want to lodge an objection that I think we're venturing far into legal opinion realm.

8:42:10AM

THE COURT: Okay. So -- and the other thing is if you don't object after the question, then the witness is going to answer. So I can see you standing, but you need to object.

8:42:22AM

I certainly am not taking her testimony as legal opinion.

8:42:26AM

I don't know what the point of this, Ms. Dunn. So if you can rephrase with the point.

8:42:35AM

MS. DUNN: Sure. This was a discussion that we had with Dr. Athey in her deposition about forced interoperability, so I -- mainly just trying to discuss that with Dr. Athey.

8:42:47AM

Q. And I guess my -- my only question here is whether it is your view that forced interoperability should be a remedy in this case?

8:42:59AM

MR. EVEN: Same objection, Your Honor.

8:43:02AM

THE COURT: Well, have you expressed an opinion on forced interoperability?

8:43:06AM

THE WITNESS: So I -- that --

8:43:12AM

THE COURT: I just want to know, have you expressed an opinion?

8:43:14AM

8:43:15AM

THE WITNESS: No.

8:43:19AM

THE COURT: Okay.

8:43:21AM

THE WITNESS: It -- well, let me make sure I -- can I

8:43:24AM

understand the question? So my -- in my -- my summary of

8:43:27AM

opinions does not -- does not use the term "forced

8:43:35AM

interoperability."

8:43:35AM

I'm trying to understand, you know, the -- the question

8:43:38AM

and the -- the bounds of the term which would be important to

8:43:42AM

be precise.

8:43:43AM

So my opinion, which I tried to state clearly, was about

8:43:52AM

restrictions on middleware. And so removing those

8:43:57AM

restrictions would be, in my opinion, beneficial for consumers

8:44:03AM

and developers. So that -- my -- my opinion was about how

8:44:08AM

changing restrictions would affect consumers and -- and

8:44:13AM

developers.

8:44:14AM

BY MS. DUNN:

8:44:16AM

Q. Right.

8:44:16AM

And my question is since you used the word

8:44:18AM

"interoperability" throughout your report and your testimony,

8:44:22AM

whether you understand that what Epic is asking for in this

8:44:26AM

case is for Apple to make its products interoperable.

8:44:30AM

A. So, again, when I'm using the term "interoperability," I'm

8:44:36AM

using it in the context of a specific restriction or the

8:44:39AM

specific experiences of -- of a consumer, so I'm -- I'm

8:44:44AM

concerned with the -- the breadth of your language, that it --

ATHEY - REDIRECT / EVEN

8:44:49AM

it -- you know, am I saying that the -- you know, is everything about Android the same as everything about the iPhone, or would -- should it be that apps that run on Android also run on iPhone.

8:45:07AM

So there's -- you know, without more context and specificity, that term could be -- you know, saying you should have forced interoperability could be interpreted in a lot of different ways. So I've tried to be specific about what kinds of interoperability would be beneficial. And I gave specific examples of those, which I could give again if you -- if it's not clear.

8:45:35AM

Q. No. That's unnecessary.

8:45:36AM

Your Honor, I pass the witness.

8:45:38AM

THE COURT: Redirect.

8:45:39AM

REDIRECT EXAMINATION

8:45:43AM

BY MR. EVEN:

8:46:01AM

Q. Good morning, Professor Athey.

8:46:03AM

A. Good morning.

8:46:04AM

Q. I want to ask you a few questions about some of the questions that Ms. Dunn presented today and yesterday.

8:46:12AM

And let's start with the last point about interoperability. Have you given any opinions in your reports or in your direct about any duty on Apple to make any of its own software available on Android, for instance?

8:46:28AM

A. No.

ATHEY - REDIRECT / EVEN

8:46:44AM

Q. Ms. Dunn asked you some questions about something called GameClub.

8:46:46AM

Do you remember that?

8:46:48AM

A. Yes.

8:46:48AM

Q. And she said GameClub is available now on the iOS?

8:46:54AM

A. Yes.

8:46:58AM

Q. Do you remember from your report whether GameClub's entry into iOS was smooth?

8:47:05AM

A. No. In my report, I mention that GameClub's application to the App store was rejected more than 100 times.

8:47:13AM

Q. And can GameClub under Apple's current restrictions offer any and all games?

8:47:26AM

A. No.

8:47:27AM

Q. What kind of games can GameClub offer?

8:47:29AM

A. So GameClub needs to have an exclusive license to its

8:47:36AM

games, and so it -- it can't offer -- the restrictions

8:47:40AM

preclude third-party games, so there -- these are contractual

8:47:47AM

restrictions not related to the -- you know, the game itself

8:47:51AM

but whether the game developer has a contract with someone

8:47:54AM

else.

8:47:57AM

Q. Turning to Steam, you mentioned Steam on your direct

8:48:02AM

testimony as a -- an example of a cross-platform app store,

8:48:05AM

correct?

8:48:06AM

A. Yes.

8:48:06AM

Q. And if I remember correctly, you pointed out that it's

ATHEY - REDIRECT / EVEN

8:48:10AM

something that you can download apps on to one operating system and then port them to another operating system, right?

8:48:19AM

A. That -- the -- that -- what the -- want to be careful with the word "port," but as a user, you can -- say, if you switch from a Mac to a PC or from a PC to the Mac, it facilitates your downloading the game on whichever -- either platform and playing it on that platform.

8:48:40AM

Q. And you mentioned yesterday that you can do that as a one-stop shop through something like Steam, correct?

8:48:50AM

A. Correct.

8:48:51AM

Q. And Ms. Dunn showed you the Steam app on iOS. Can you download iOS games through the Steam app?

8:49:04AM

A. On the iOS, no.

8:49:06AM

Q. Can you download Android games through the Steam store through the app on Android?

8:49:11AM

A. No.

8:49:20AM

Q. And Ms. Dunn also asked you a few questions about Steam Link, which allows you to, as we put it, stream games on to your mobile device.

8:49:31AM

Where is this streaming from?

8:49:33AM

A. From your PC.

8:49:35AM

Q. And so you would need both the PC running the game and your phone?

8:49:39AM

A. Correct.

8:49:58AM

Q. Want to turn to a couple of things that you were asked

ATHEY - REDIRECT / EVEN

8:50:01AM yesterday.

8:50:02AM You were asked a few questions about your work for

8:50:06AM Microsoft.

8:50:06AM Do you remember that?

8:50:07AM **A.** Yes.

8:50:11AM **Q.** And you remember that counsel for Apple asked you even

8:50:16AM though it was your relationship with Microsoft that prevented

8:50:19AM you from looking at Apple's confidential documents, you didn't

8:50:22AM think you should disclose that on your C.V.

8:50:26AM Do you remember being asked that question?

8:50:27AM **A.** Yes.

8:50:46AM **Q.** And you said yesterday that what prevented you from

8:50:49AM looking at Apple's confidential documents was what you

8:50:51AM referred to as a W2 work for Microsoft.

8:50:55AM Do you recall that?

8:50:56AM **A.** Yes.

8:50:57AM **Q.** And by "W2," I -- I assume you meant that you were an

8:51:02AM employee of Microsoft, correct?

8:51:04AM **A.** Correct.

8:51:07AM **Q.** When were you an actual employee of Microsoft?

8:51:10AM **A.** So the employment relationship comes through the Microsoft

8:51:18AM research visiting researcher program, which is something like

8:51:24AM if you take a leave of absence from your university or you

8:51:29AM spend more than a certain amount of time with Microsoft

8:51:34AM research, then you -- it becomes a employment relationship.

ATHEY - REDIRECT / EVEN

8:51:38AM And so I had that relationship in 2008 and in one other
8:51:46AM subsequent period. I believe in 2011 or 2012.

8:51:57AM Q. And was your employment for Microsoft or your relationship
8:52:01AM with Microsoft in 2008 and 2011 disclosed on your C.V. in this
8:52:06AM case?

8:52:06AM A. Yes.

8:52:11AM Q. Are you presently engaged by Microsoft on any antitrust
8:52:14AM matter?

8:52:14AM A. No.

8:52:18AM Q. Did you seek permission from Microsoft to serve as an
8:52:21AM expert in this case?

8:52:21AM A. No.

8:52:26AM Q. Did anyone at Microsoft ask you to serve as an expert in
8:52:29AM this case?

8:52:29AM A. No.

8:52:35AM Q. Did you get any direction from Microsoft about any of the
8:52:38AM opinions you voiced in this case?

8:52:41AM A. No.

8:52:44AM Q. Has Microsoft been your primary consulting client in
8:52:47AM recent years?

8:52:49AM A. No.

8:52:49AM Q. When was the last time that Microsoft was your primary
8:52:52AM consulting client?

8:52:53AM A. It was scaling down during 2015, and so somewhere in that
8:53:03AM range.

ATHEY - REDIRECT / EVEN

8:53:06AM

Q. As far as you know, did your engagement by Epic have anything to do with Microsoft?

8:53:10AM

A. Not as far as I know.

8:53:23AM

Q. Ms. Dunn asked you some questions yesterday about your potential review of hypothetical confidential Apple documents that hypothetically said how many people switched from Android iOS or vice versa.

8:53:37AM

You remember that?

8:53:40AM

A. Yes.

8:53:41AM

Q. Is there public data concerning switching between iOS and Android?

8:53:46AM

A. Yes.

8:53:47AM

Q. And as a tech economist, platform economist, do you

8:53:53AM

generally keep abreast of the data about switching between those two platforms?

8:53:56AM

A. Yes.

8:54:07AM

THE COURT: Is all of that evidence attached to your report? That is, is it a part of the record in this case?

8:54:16AM

MR. EVEN: I'm sorry. Which data is that, Your Honor?

8:54:19AM

THE COURT: What you just asked her about, the data about switching between the platforms. Is that data that is in the record in this case, Professor Athey?

8:54:27AM

THE WITNESS: I -- I don't want to misspeak, but I --

8:54:38AM

THE COURT: Well, and I just want to know what's in

ATHEY - REDIRECT / EVEN

8:54:40AM

the record.

8:54:45AM

THE WITNESS: I believe that Dr. Evans has information.

8:54:52AM

THE COURT: Did you rely on Dr. Evans in establishing your opinions?

8:54:55AM

THE WITNESS: I relied on Dr. Evans for the market definition and for the -- the switching costs and the -- the market power in both the -- the foremarket and the aftermarket.

8:55:01AM

THE COURT: Did you review data and did you analyze data?

8:55:10AM

THE WITNESS: I did not do original analysis of data.

8:55:14AM

THE COURT: And there's no data attached to your report?

8:55:18AM

THE WITNESS: No -- no original data, no.

8:55:22AM

THE COURT: All right. Thank you.

8:55:29AM

BY MR. EVEN:

8:55:46AM

Q. You were also asked some questions about DX5612 and -- which talked about some bad news and good news about switching between iOS and Android.

8:56:04AM

Do you remember that?

8:56:05AM

A. Yes.

8:56:16AM

Q. And in the good news, it said -- and I'm reading from it -- "These days, most major productivity apps are readily available on both platforms. And once you are all set up with

8:56:23AM

ATHEY - REDIRECT / EVEN

8:56:31AM Android, all of your apps and app data will automatically sync with Google servers and follow you to any future Android devices."

8:56:41AM Do you see that?

A. Yes.

Q. Is that good news about the transfer from iOS to Android?

A. No.

Q. What is this good news about?

A. The -- it's speaking about following between Android devices. So good news for switching among Android devices.

Q. You were also asked by Ms. Dunn about some -- an article from *The Guardian* that you cited in your report.

8:57:17AM Correct?

A. Yes.

Q. So I'm putting up on the screen the relevant portion that counsel for Apple directed you to. And it's on page 3.

(Exhibit published.)

BY MR. EVEN:

Q. And you recall that counsel for Apple asked you some questions suggesting that you omitted the parts that are bad for you in this -- in the article?

A. Yes.

Q. And specifically, counsel for Apple pointed you to the stuff that says that piracy on Android is a fact, correct?

A. Yes.

ATHEY - REDIRECT / EVEN

8:57:55AM

Q. So I'd like to maybe scroll down a little bit to the points that Ms. Dunn did not show you.

8:58:00AM

(Exhibit published.)

8:58:02AM

BY MR. EVEN:

8:58:05AM

Q. And do you see that after they say that piracy on Android is a fact, they say, yet, a, piracy is also a fact of the life on iOS through some elements of its jail-breaking community; b, it's always difficulty to work out how many pirates represent generally low sales would they have bought the app otherwise; and, c, if an app is free of premium, then piracy is much less of a headache.

8:58:11AM

8:58:18AM

8:58:21AM

8:58:24AM

8:58:28AM

8:58:33AM

8:58:36AM

Do you see that?

8:58:37AM

A. Yes.

8:58:37AM

Q. And then the article goes on to say only Android user less keen -- sorry -- on the Android user-less-keen-to-pay point, it's true that iOS is still more lucrative for developers. Apple has paid out more than ten billion to its developers while Google hasn't given comparable figures.

8:58:42AM

8:58:45AM

8:58:49AM

8:58:54AM

8:58:58AM

Do you see that?

8:58:59AM

A. Yes.

8:58:59AM

Q. Does the article reach a definitive conclusion about the point for which you cited it, which was the point about users paying more on iOS?

8:59:03AM

8:59:08AM

8:59:09AM

8:59:17AM

ATHEY - REDIRECT / EVEN

8:59:24AM

Q. And does the article reach a definitive conclusion that Android piracy is a deterrent more so than iOS piracy?

8:59:36AM

A. I think it's suggesting that -- that piracy may be more common, but also that because, you know, people who have less money to spend might be substituting between piracy and not using the game at all rather than piracy for -- for paying.

8:59:51AM

That's my -- my interpretation of this?

9:00:00AM

So although piracy may be more common, it doesn't necessarily mean that fixing the piracy would make the developers earn more. But that's -- in any case, that's -- that -- the point that I cited them about was that -- that iOS developers often develop first on iOS, but also most of them eventually go to Google, too, which is, you know, all consistent with this.

9:00:20AM

Q. Okay.

9:00:28AM

You were asked some questions yesterday about whether Apple would need to undertake any technical redesign efforts for middleware to run on iOS, correct?

9:00:34AM

A. Correct.

9:00:39AM

Q. And one of the middleware instances you were talking about were streaming services, correct?

9:01:01AM

A. Yes.

9:01:02AM

Q. And you testified yesterday that you reviewed Microsoft trial testimony concerning streaming, correct?

9:01:06AM

A. Yes.

ATHEY - REDIRECT / EVEN

9:01:09AM Q. And that you reviewed Nvidia's testimony on the topic of streaming, correct?

9:01:13AM

9:01:16AM MS. DUNN: Objection. I think mischaracterizes the record.

9:01:18AM

9:01:23AM THE COURT: Sustained. I think you -- you said you didn't listen to the testimony. But did you read something else?

9:01:25AM

9:01:30AM

9:01:30AM THE WITNESS: I --

9:01:32AM THE COURT: What is it that -- let's just get the record clear.

9:01:33AM

9:01:35AM THE WITNESS: Sorry.

9:01:37AM MR. EVEN: I think, Your Honor, what --

9:01:39AM THE COURT: Just let -- she can answer.

9:01:40AM BY MR. EVEN:

9:01:40AM Q. Go ahead.

9:01:41AM THE COURT: Was it Nvid- -- did you read the testimony or something else?

9:01:44AM

9:01:46AM THE WITNESS: I read selections of testimony that related to streaming.

9:01:48AM

9:01:49AM THE COURT: Okay. For Microsoft and Nvidia.

9:01:52AM THE WITNESS: Yes.

9:01:52AM THE COURT: Okay.

9:01:53AM BY MR. EVEN:

9:01:54AM Q. And based on your review of that testimony, do you have an understanding whether technical design changes would need to

9:01:57AM

ATHEY - REDIRECT / EVEN

9:01:59AM

be done in iOS to support app streaming?

9:02:02AM

A. My understanding was that these witnesses said that technical design changes would not be needed, that -- I believed that, you know, one of the apps accepted and -- and -- from Nvidia and then taken down, so --

9:02:29AM

MR. EVEN: Thank you, Professor Athey. I have no further questions.

9:02:32AM

THE WITNESS: Thank you.

9:02:33AM

THE COURT: Any recross on those seven topics?

9:02:37AM

MS. DUNN: No re-cross, Your Honor. Thank you.

9:02:38AM

THE COURT: All right. Professor, you're excused.

9:02:41AM

Thank you.

9:02:42AM

If counsel will come and get those binders.

9:02:45AM

Next witness.

9:02:46AM

(Off-the-record discussion.)

9:03:04AM

THE COURT: Ms. Forrest, next witness.

9:03:06AM

MS. FORREST: Yes. Your Honor, we now turn to some

9:03:09AM

of the economists from the Apple side.

9:03:12AM

THE COURT: Okay. Thank you.

9:03:13AM

MR. SWANSON: Your Honor, as our next witness --

9:03:13AM

perhaps our first witness, we're calling Professor Richard

9:03:13AM

Schmalensee.

9:03:34AM

THE COURT: You need to identify yourself for the record.

9:03:35AM

MR. SWANSON: Dan Swanson for Apple, Your Honor.

SCHMALENSSEE - DIRECT / SWANSON

9:03:39AM

Good morning.

9:03:39AM

THE COURT: Good morning.

9:03:45AM

Your witness, sir, is...? So and you're calling.

9:04:02AM

MR. SWANSON: I'm sorry. Professor Richard

9:04:05AM

Schmalensee.

9:04:06AM

THE COURT: Okay. Thank you.

9:04:06AM

RICHARD SCHMALENSSEE,

9:04:08AM

called as a witness for the DEFENDANT, having been duly sworn,

9:04:08AM

testified as follows:

9:04:16AM

THE CLERK: All right. Please be seated and then if
you will put that mic below your plastic shield there and --

9:04:24AM

THE WITNESS: Hello, hello, hello. Does that work?

9:04:26AM

Okay.

9:04:26AM

THE CLERK: State your full name and spell your last
name, please.

9:04:29AM

THE WITNESS: Full name is Richard Schmalensee. The
last name is spelled S-c-h-m-a-l-e-n-s-e-e.

9:04:38AM

THE COURT: Good morning, sir.

9:04:39AM

THE WITNESS: Good morning.

9:04:41AM

THE COURT: You may proceed.

9:04:42AM

MR. SWANSON: Thank you, Your Honor.

9:04:43AM

DIRECT EXAMINATION

9:04:44AM

BY MR. SWANSON:

9:04:44AM

Q. Professor Schmalensee, where are you currently employed?

9:04:48AM

A. At the Sloan School of Management at the Massachusetts

9:04:50AM Institute of Technology.

9:04:53AM Q. Okay. And what is your current title? And perhaps you can give us a little bit of background.

9:05:01AM A. Well, I'm Howard W. Johnson Professor of Management emeritus, Professor of Economics emeritus, and was formerly Dean of the MIT Sloan School, so I'm Dean emeritus.

9:05:15AM Q. Okay.

9:05:15AM We have a copy of Professor Schmalensee's C.V. which has been marked as DX5548, which we would offer, Your Honor.

9:05:27AM MR. BORNSTEIN: No objection, Your Honor.

9:05:27AM THE COURT: 5548 is admitted.

9:05:27AM MR. SWANSON: Thank you.

9:05:27AM (Defendant's Exhibit 5548 received in evidence)

9:05:27AM (Off-the-record discussion.)

9:05:35AM MR. BORNSTEIN: I'm sorry. It's Gary Bornstein for Epic.

9:05:37AM THE COURT: So just -- again, so the -- attorneys know, not only is it important for people listening to identify yourselves, but because we've had issues trying to cover as much of the trial, we now have additional court reporters, and they can use the additional identifications.

9:05:59AM Thank you.

9:06:01AM Proceed.

9:06:03AM BY MR. SWANSON:

9:06:03AM Q. All right, Professor. We have your C.V. in evidence, but

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9:06:07AM could you just briefly describe your -- your formal education.

9:06:09AM **A.** I have a bachelor's and a Ph.D. in economics from MIT.

9:06:14AM **Q.** Okay.

9:06:15AM Have you ever testified as an expert in federal or state court before?

9:06:18AM **A.** Yes, I have.

9:06:20AM **Q.** And generally speaking what was the subject of -- of your prior testimony?

9:06:25AM **A.** Much of my testimony has concerned alleged violations of the antitrust laws. I suppose most notably, I was Microsoft's expert in the *U.S. vs. Microsoft* case.

9:06:29AM **Q.** Have you ever been a consultant to any competition agency?

9:06:34AM **A.** Yes. I was for a number of years consultant to the Bureau of Economics at the Federal Trade Commission. And I was one of a few consultants -- I don't know how many -- to the Antitrust Division of the Department of Justice in connection with preparation of the 1992 Horizontal Merger Guidelines.

9:06:36AM **Q.** Have you ever been retained as a consultant by Apple before this case?

9:06:43AM **A.** No.

9:06:46AM **Q.** Professor Schmalensee, have you ever served in the government?

9:06:49AM **A.** Yes, I have.

9:06:52AM **Q.** And in what role?

9:06:55AM **A.** I was a member of the Council of Economic Advisors from

SCHMALENSSEE - DIRECT / SWANSON

9:07:17AM 1989 through 1991.

9:07:19AM Q. And just briefly, what -- what is that? What does that role entail?

9:07:23AM A. Well, the -- it's fairly broad role. The Council of

9:07:27AM Economic Advisors is a three-person entity established in

9:07:30AM 1946. It sits with a small staff in the Eisenhower Executive

9:07:38AM Office building next to the White House and advises the

9:07:41AM president on a broad range of economic policy issues.

9:07:45AM Q. Did that include competition policy issues?

9:07:47AM A. Occasionally. I -- I was engaged with the antitrust

9:07:51AM division on at least two international matters.

9:07:54AM Q. All right.

9:07:56AM Have you been following the trial in this case?

9:07:57AM A. I have either read or listened to everything that's gone on.

9:08:02AM Q. And one more question about your background in general.

9:08:10AM What -- what has been the focus of your academic research?

9:08:14AM A. Well, as an economist, I've worked on a fairly wide range

9:08:19AM of topics in the general field of industrial organization and

9:08:23AM its application to public policy.

9:08:24AM In the last 20 years or so, much of my work has focused on

9:08:28AM platform economics.

9:08:31AM **THE COURT:** Professor.

9:08:32AM **THE WITNESS:** Platform businesses.

9:08:32AM **THE COURT:** Could you just slow down a little.

9:08:34AM

THE WITNESS: I'm sorry.

9:08:35AM

THE COURT: Okay.

9:08:35AM

THE WITNESS: A bad habit.

9:08:41AM

BY MR. SWANSON:

9:08:41AM

Q. And in connection with platform economics and writing,
what -- what can you point to by way of --

9:08:54AM

A. Well, at least 3 books in the last 20 years or so.

9:08:57AM

"Invisible Engines" in 2006. "Catalyst Code" in 2007. And
"Matchmakers" published in 2015.

9:09:03AM

Q. Did you have a coauthor?

9:09:10AM

A. Dr. Evans, who's testified here, was coauthor on all three
books.

9:09:15AM

Q. Okay.

9:09:16AM

Have you and Dr. Evans collaborated on anything beside
those three books?

9:09:21AM

A. Well, in the last 20 years or so, we've -- we've written
together, I think -- what is it -- a half to -- 5 -- half
dozen journal articles, maybe 8 book chapters, 15 other
writings, including I guess most notably amicus briefs to the
Second Circuit in the *Saber* case and to the Supreme Court in
the *American Express* case.

9:09:46AM

Q. And in what capacity did you and Dr. Evans submit those
amicus briefs?

9:09:53AM

A. As economists commenting on the case and prior rulings.

9:09:59AM

Q. And did you -- well, are you aware of whether your amicus

briefs were cited in any of the rulings that came in those cases?

A. I believe we were cited in the -- by the Second Circuit.

I know we were cited extensively, our writings, by the -- both the majority and the dissent in the *AmEx* case.

MR. SWANSON: Your Honor, I'd like to offer Professor Schmalensee as an expert in antitrust economics and platform economics.

MR. BORNSTEIN: No objection, Your Honor.

THE COURT: He's admitted.

BY MR. SWANSON:

Q. Professor, did you hear Dr. Evans' direct testimony on transaction platforms?

A. I did hear his direct testimony. I also read his written testimony.

Q. And -- and what -- what -- what did you read or hear on the subject of transaction platforms, just in brief?

A. Well, in his -- in his written testimony, he described the App Store as a transaction platform linking developers and consumers.

In his oral testimony, he seemed to describe the App Store as a distribution ser- -- facility providing services to developers. That is to say, as a one-sided business.

Q. Now, you mentioned your joint amicus brief with Dr. Evans in the *AmEx* case.

9:11:24AM Did you and Dr. Evans discuss transaction platforms in
9:11:29AM that brief?

9:11:30AM **A.** We did. That was -- I guess our central message was that
9:11:36AM in that case or in general, when a business performs or
9:11:42AM provides a service -- well, we said jointly and unseverably;
9:11:46AM the Supreme Court said simultaneously -- to both sides, it is
9:11:52AM providing a single product, transactions. And that analysis
9:11:58AM or -- or consideration of only one side in that platform would
9:12:03AM lead to -- would lead to inaccurate conclusions.

9:12:08AM **Q.** Now, did you review Dr. Evans' testimony that Apple's iOS
9:12:13AM business includes two distinct platforms, both connecting
9:12:18AM developers and consumers?

9:12:19AM **A.** I did.

9:12:21AM **Q.** And -- and have you formed an opinion on that testimony?

9:12:27AM **A.** Yes. I -- I don't think that's the right way to think
9:12:32AM about the business, at least that's not the way I think about
9:12:35AM the business or anybody else seems to think about the
9:12:37AM business.

9:12:39AM Apple's iOS business is clearly a platform linking
9:12:44AM consumers and developers. The iOS operating system is at the
9:12:51AM core of that platform. It's -- it -- it runs the devices, and
9:12:55AM it links app -- applications programs or apps to those
9:13:01AM devices.

9:13:02AM The third element besides devices and the operating system
9:13:06AM is the App Store, which is a transaction platform that

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9:13:13AM facilitates transactions between -- linkage between consumers
9:13:17AM and app developers.

Q. Do you agree with Dr. Evans that there is a foremarket in
9:13:23AM which iOS competes with other operating systems for mobile
9:13:29AM devices in which Apple has market power?

A. No. There -- there really isn't a market there. I mean,
9:13:35AM you think of a market as someplace where things are bought and
9:13:39AM sold by buyers and sellers. And the Apple iOS has never been
9:13:44AM licensed separately or distributed separately from devices.

And the other system he considers, Android, has always
9:13:51AM been free. It -- it's just not -- not an ordinary market.

What is an ordinary market and comes close is devices in
9:14:03AM which bundles of operating systems, so to speak, and hardware
9:14:07AM are bought and sold and in which Apple has about a 15 percent
9:14:12AM global share of smartphones -- smartphone unit sales, let me
9:14:16AM be clear.

Q. Changing the subject momentarily, Professor Schmalensee,
9:14:24AM are you familiar with the term "IAP"?

A. I am. It's -- it's Apple's -- it stands for in-app
9:14:32AM processing. And it's the functionality that's part of the App
9:14:37AM Store that handles payments for in-app transactions.

Q. Do you -- in-app processing or in-app purchasing?

A. I said "in-app transactions," but it's in-app purchasing
9:14:54AM it handles the payment for.

Q. Um-hmm.

SCHMALENSSEE - DIRECT / SWANSON

9:14:56AM

And what do you understand about the functions that --
that IAP performs?

9:15:03AM

A. Well, it's -- it's part of a larger system, and -- and
there are a lot of functions performed. But a key function
and a function that's critical to this case is it
automatically and essentially frictionlessly collects the
commission due Apple on transactions involving in-app
purchases.

9:15:27AM

MR. SWANSON: And the --

9:15:27AM

(Off-the-record discussion.)

9:15:28AM

BY MR. SWANSON:

9:15:28AM

Q. And the amount of the commission is what?

9:15:36AM

A. Well, the -- it's a -- typically a 30 percent commission,
although it's 15 percent in some cases. But it's -- it's
important to recognize, and I must say I find these kind of
shocking figures, Apple engages with hundreds of thousands of
developers in 175 countries and regions. The average
commission on a transaction handled by the App Store is a bit
under \$3. And the store handles well over a billion and a
half transactions of that sort a year, a billion and a half
small transactions from all over the world every year.

9:16:05AM

Q. Is the 30 percent commission or the 15 percent commission
in instances where that is charged in your view charged and
collected only for payment processing?

9:16:29AM

A. Not at all. It -- it's a commission charged by Apple as

SCHMALENSSEE - DIRECT / SWANSON

9:16:36AM part of its pricing strategy.

9:16:38AM You know, Epic executives were asked about that, and
9:16:43AM Mr. Sweeney said that the -- the Epic Game Store commissions
9:16:49AM were to cover all variable costs. One of the other Epic
9:16:53AM executives, I think Mr. Allison, said it -- the charge was for
9:16:58AM admission to our audience. However one wants to characterize
9:17:02AM it, it's not payment processing. It -- it's a commission on a
9:17:06AM transaction.

9:17:08AM Q. Are you aware that Epic and Dr. -- well, Epic alleges and
9:17:13AM Dr. Evans concludes that IAP is a separate tie product in a
9:17:21AM market for solutions for accepting and processing payments for
9:17:25AM digital content purchased within an iOS App?

9:17:31AM A. I am aware of that. That may also be the longest market
9:17:34AM definition I've ever heard, but I am aware of that, yes.

9:17:38AM Q. Well, does this -- it may be long, but does it describe a
9:17:42AM plausible market in your opinion?

9:17:43AM A. It does not. A market is where something -- some things
9:17:52AM are bought and sold with buyers and sellers. And the way
9:17:56AM Dr. Evans describes this general area of commerce, let me just
9:18:02AM say that, is that solutions are produced by payment processors
9:18:09AM and app developers not bought and sold.

9:18:16AM I don't know what IAP is. It's not a payment processor.
9:18:21AM It engages with a payment -- payment processors, so I'm not
9:18:25AM sure what it is. But I am sure that there's nothing bought
9:18:28AM and sold in that market, as far as I can tell.

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9:18:31AM

Q. Is Dr. Evans' payment solutions market a single-brand market?

9:18:41AM

A. It's a single-brand market, and it's even narrower than that because he excludes payment solutions employed by firms that sell physical products on iOS Apps. So it's a narrow market, and it's a -- it's small.

9:18:42AM

Normally, if -- if there is a market, you think about, well, how big is this thing relative to the market, to a broader market? And IAP handles at most 3 percent of the dollar volume of in-app purchases, so it's -- it's small.

9:18:45AM

Q. Now, both you and Dr. Evans have mentioned payment processors. You just mentioned it in your last answer.

9:18:51AM

Is IAP a payment processor?

9:18:56AM

A. No. IAP, the -- the closest analog I can come up with in the brick-and-mortar world is it's like the credit card terminal. It connects to a payment processor. Apple uses a payment processor to authorize transactions and collect the money.

9:19:01AM

Q. Does it make sense to treat IAP as a separate product distinct from the App store?

9:19:06AM

A. It doesn't. Because IAP is the essential way that Apple collects its commissions. It -- it is -- I'm not quite sure how I can elaborate on this. This is how Apple in a automatic-and-seamless fashion collects the commissions its owed, so it's -- it is an integral part of the store.

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9:20:36AM Q. Now, Dr. Evans asserts -- concludes in his opinion that there is a separate demand for payment solutions distinct from the demand for facilitating app transactions.

9:20:55AM Do you agree with his position?

9:20:56AM A. Well, what I've seen on that in his -- in his testimony in its various forms is that developers would really rather not pay the 30 percent and would like to find another solution, another way to handle their own payments so they don't have to pay Apple.

9:21:07AM I don't view that as a separate demand for a service. I view that as a desire not to pay a commission.

9:21:12AM Q. Dr. Evans, certainly in his written direct, says that IAP should, in fact, compete with third-party payment solutions on the merits.

9:21:15AM What is your -- what is your evaluation of that opinion?

9:21:27AM A. Well, this sort of seems to me to be a back-handed way to once again say, oh, well, IAP is just about payment processing. But if you think about that kind of competition, it can't possibly be on the merits.

9:21:39AM Here is a IAP, which is tasked with collecting a 9:21:43AM 30 percent commission on many transactions. Third-party 9:21:48AM payment processors would not seek to collect a commission, at 9:21:51AM least none that I've heard of. So IAP would always be the 9:21:54AM high priced alternative, and it's hard to see how IAP would 9:21:57AM prevail in that sort of competition, which doesn't seem like 9:22:00AM 9:22:06AM 9:22:09AM 9:22:15AM 9:22:18AM

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9:22:23AM competition on the merits.

9:22:26AM Q. Has Dr. Evans, in your view, pointed to an example or any example of this type of so-called competition on the merits?

9:22:34AM A. No. He hasn't pointed to a single successful platform that has nominally charged a commission and yet made it easy for developers or the sellers on the platform to avoid that commission.

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9:22:46AM Q. Do any other two-sided platforms use a business model that is similar to the App store's model?

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9:22:54AM A. Well, lots of them. I think Mr. Sweeney testified that --

9:22:59AM that every app store through which Epic reaches consumers has basically that model, charges a commission and automatically collects that commission using its own payment system.

9:23:01AM

9:23:06AM That would be -- and I'll see if I can -- if I can list them all. It's a long list. But it would be Steam, it would

9:23:11AM be the Google Play. It would be the Microsoft Store. It

9:23:16AM would be the XBox Store, the Nintendo Store. Google -- did I

9:23:19AM say Google Play? I might have said Google.

9:23:23AM

9:23:26AM Q. I think --

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9:23:41AM (Simultaneous colloquy.)

9:23:44AM

9:23:45AM **THE WITNESS:** There are about eight of them that

9:23:46AM Mr. Sweeney listed that Mr. Evans listed -- Dr. Evans listed.

9:23:52AM In addition, in his -- in his written testimony, he listed

9:23:55AM a number of platforms that sell physical goods maybe and

9:24:00AM services. And in his oral testimony, his cross-examination,

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9:24:03AM said, yes, indeed. All of them charge commissions, and all of
9:24:07AM them collect those commissions automatically by requiring use
9:24:11AM of their own payment systems.

9:24:13AM **BY MR. SWANSON:**

9:24:13AM **Q.** What do you conclude from this?

9:24:16AM **A.** Well, I conclude two things really. First, that an -- in
9:24:21AM an online business of this kind, that commission model is a
9:24:27AM natural way to monetize. In larger transactions, the store
9:24:31AM makes more money, the seller makes more money, so the
9:24:35AM percentage commission model seems natural, seems very common.

9:24:39AM And second, when stores handle a large number of small
9:24:44AM transactions, collecting those fees automatically seems to be
9:24:49AM the natural model, seems to be the -- the obvious way to go.

9:24:56AM **Q.** And you'd mentioned the number of transactions that the
9:25:01AM App Store collects annually.

9:25:03AM What was that number again?

9:25:05AM **A.** Well, it's over a billion and a half. And they're --
9:25:10AM they're, on average, quite small.

9:25:13AM **Q.** Have you observed or analyzed transaction platforms that
9:25:18AM are not online stores impose restrictions that serve purposes
9:25:25AM similar to those served by the IAP requirement?

9:25:28AM **A.** Well, I guess not surprisingly American Express comes to
9:25:32AM mind. American Express operates -- offers a transaction
9:25:40AM platform. And American Express has anti-circumvention rules
9:25:44AM to ensure that it collects its commission.

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9:25:47AM It collects its commission essentially automatically these days and has rules against steering, so to speak, trying to persuade customers to buy from a cheap -- through a cheaper payment system.

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9:26:01AM It's the same -- it's the same rule. I mean, the -- the App store has rules to -- to avoid steering. *AmEx* had a rule to avoid steering.

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9:26:12AM

9:26:14AM Q. Was that practice one that was at issue in the *AmEx* case were you and Dr. Evans submitted the amicus brief?

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9:26:25AM A. Yes, it was.

9:26:27AM Q. In your view as an antitrust economist, as a expert on platforms, is Apple's IAP requirement anti-competitive?

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9:26:35AM A. No. Apple's IAP requirement is an efficient way to collect a commission, and a commission-based business model appears to be the natural business model for online stores.

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9:26:50AM Q. When you testify that it's not anti-competitive, are you specifically including in your opinion these so-called anti-steering provisions that bar developers from steering customers within the app to payment methods outside the app?

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9:27:12AM A. I am. It's exactly the same. Exactly the same as the anti-steering provisions at issue in *AmEx* that prohibited the seller from trying to avoid the commission by persuading the buyer, one way or another, to restructure the transaction in a way that reduce -- would reduce the seller's commission.

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9:27:34AM Q. Earlier --

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THE COURT: And *AmEx*, there wasn't a duopoly, though, correct?

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THE WITNESS: I'm sorry, ma'am?

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THE COURT: I said in *AmEx*, there wasn't a duopoly.

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THE WITNESS: No. In *AmEx* there were multiple

9:27:48AM

competitors, but it was the same rule. The -- the rule said the merchant can't say to a customer -- as has happened to me, may have happened to you -- I'd really rather you didn't use the *AmEx* card. Could you use the Visa? It will save me money, please.

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That's the kind of steering that was at issue in the *AmEx* case.

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THE COURT: Right. But when you go into a store, you can see the sign that says, Visa, Mastercard, Discover, *AmEx*. Maybe not Discover anymore. Back then there, was Discover.

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THE WITNESS: Yes.

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THE COURT: So there were -- there were visual

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indications of options. Those visual indications of options don't exist in this circumstance.

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THE WITNESS: Well, let me -- let me explain the comparison. In -- in the store, you're right, there was the visual indications, Your Honor, that said, we accept American Express.

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The merchant was prohibited by contract to say -- to say,

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even though we express -- accept American Express, would you

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please use something else.

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The analog here would be a button in the -- in an app that says, well, you could buy through the IAP through the App Store, but you'll save a lot of money if you go elsewhere. That's the -- that's the call to action that the App Store's rules prohibit. And it's the same attempt -- could be --

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THE COURT: But it doesn't say "also available on our website."

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THE WITNESS: Well, it could.

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THE COURT: "Also available on Steam."

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THE WITNESS: It could. And that's what the rules prohibit. The rules prohibit saying you could save money if you did X.

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THE COURT: That's what -- that's right. That's what the rules say, you cannot do.

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THE WITNESS: Correct.

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THE COURT: But if you were in a physical shop during the AmEx time period, you would know that because when you went to the register, it would show that there were other payment options.

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THE WITNESS: It would, Your Honor, but -- but the -- the difference here is it wouldn't say the merchant would save money if you use this rather than the other.

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The merchant has to say that.

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THE COURT: But these are gradations. I mean, there

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9:30:06AM is zero availability to know that you have a different option
9:30:11AM with the -- with the -- on the app, whereas that did not
9:30:17AM exist. That zero availability did not exist. And what's so
9:30:21AM bad about it anyway, Professor?

9:30:23AM **THE WITNESS:** I'm sorry. What's what about?

9:30:27AM **THE COURT:** I said what's so bad about it anyway, to
9:30:29AM have consumers have choice?

9:30:31AM **THE WITNESS:** The reason is if consumers have choice,
9:30:33AM if the app vendor can say, if you press this button, you can
9:30:39AM buy this for less, that means the App store can't collect its
9:30:43AM commission.

9:30:44AM So you're giving the consumer a better deal, absolutely
9:30:47AM right. But you're undercutting the App Store's ability to
9:30:51AM collect its commission and, thus, you're undercutting its
9:30:55AM revenue stream. That's what that does.

9:30:58AM And the argument in *American Express* was if you let
9:31:01AM merchants steer -- right? American Express charges more to
9:31:05AM merchants. That's its model. If you let merchants say, well,
9:31:09AM I know we said we accepted American Express, but won't you
9:31:12AM please use this other card, then American Express's model is
9:31:18AM undercut.

9:31:19AM Now, you may or may not like that model, but that's
9:31:22AM American Express's model. And as I understand it, the court
9:31:25AM said, American Express is entitled to say if you advertise you
9:31:29AM accept American Express, you have to accept it.

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9:31:32AM And the story here is, if you're on the App Store, then by
9:31:37AM contract, you pay our commission.

9:31:40AM You don't say, I know we're on the App store. I know
9:31:43AM we owe them money, but you and I can get a better deal if you
9:31:49AM buy over here and avoid the -- and I avoid paying the
9:31:52AM commission and you get a better deal. It's analytically, I
9:31:55AM think, exactly the same.

9:31:57AM **THE COURT:** I don't think it's factually the same,
9:31:58AM but proceed.

9:32:01AM **BY MR. SWANSON:**

9:32:03AM **Q.** Now, earlier, Professor Schmalensee, you mentioned that
9:32:06AM IAP does more than collect commissions.

9:32:09AM Are there any pro-competitive benefits to the business
9:32:13AM model?

9:32:14AM **A.** Well, there are. Because Apple has the unique ability to
9:32:21AM identify the hardware connected to the App Store, it can
9:32:25AM implement the one-click session model that enables privacy and
9:32:33AM security in simple transactions, easy transactions because it
9:32:38AM prevents the automatic transmission of payment card
9:32:41AM information to developers.

9:32:45AM Because all Apps go through the App -- all iOS Apps go
9:32:52AM through the App store, Apple can automatically transfers apps
9:32:56AM to new devices, can permit family sharing, and -- fraud
9:33:04AM protection features that relate to this as well. But the fact
9:33:07AM that they all go through the store means that you can keep

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9:33:10AM track of everything that's happened.

9:33:13AM Q. Could third-party providers also offer these pro-competitive benefits?

9:33:18AM A. Well, third-party providers wouldn't have the same ability that Apple has to detect the device, to know who's on the other side automatically.

9:33:22AM In addition, though information would have to be transmitted, the level of privacy and security couldn't be equaled.

9:33:27AM

9:33:29AM In addition, if you had multiple providers, then you couldn't automatically restore all purchases. You couldn't automatically share all purchases with family members.

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9:33:38AM Q. All right.

9:33:42AM I'm going to shift topics, Professor.

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9:33:53AM THE WITNESS: Your Honor, may I have a sip of water?

9:34:01AM THE COURT: Absolutely.

9:34:02AM THE WITNESS: Thank you.

9:34:02AM BY MR. SWANSON:

9:34:20AM Q. Professor, are you aware that in court filings, Epic has stated that you conceded in your deposition that if the iOS App distribution market defined by Dr. Evans is a valid antitrust market, Apple is a monopolist; it has market power?

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9:34:39AM A. I am aware of that.

9:34:41AM Q. Did you concede that?

9:34:43AM A. Well, I conceded it in the sense that I was asked in

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9:34:47AM deposition to make that assumption, and I replied with the
9:34:50AM logical consequences of that assumption. If it's a properly
9:34:53AM defined market in which Apple is the only seller, then by
9:34:58AM dictionary definition, it's a monopolist. And because it's --
9:35:01AM I was asked to assume it was a valid antitrust market, it
9:35:04AM would have some market power. That is, as I said in a
9:35:08AM deposition, a tautology.

9:35:10AM **Q.** Did -- well, in your opinion, has Dr. Evans, in fact,
9:35:17AM shown that his iOS app distribution market is a valid,
9:35:19AM relevant market?

9:35:20AM **A.** No, he has not.

9:35:22AM **Q.** Okay. Why not?

9:35:23AM **A.** Well, he's neglected the strength of indirect network
9:35:30AM effects. In his prior writings, he's shown correctly that to
9:35:35AM do a proper market definition analysis involving a two-sided
9:35:40AM platform, one needs to know not only that there are indirect
9:35:44AM network effects but how strong they are. And he really has in
9:35:50AM effect ignored those effects.

9:35:53AM **Q.** Why -- why does it matter whether one takes into account
9:35:56AM indirect network effects?

9:35:59AM **A.** Well, indirect network effects generally magnify the
9:36:05AM impact of a price change. So if a price is increased to one
9:36:09AM side on a two-sided platform and there are indirect network
9:36:14AM effects, the ultimate impact of that price will exceed the
9:36:18AM initial impact, which means that when there are indirect

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9:36:26AM network effects present, there are limits -- additional limits
9:36:29AM on the ability of a seller to raise price.

9:36:31AM If you neglect those additional limits, markets tend to be
9:36:35AM defined that are too narrow.

9:36:38AM Q. In your written testimony, you conclude that Dr. Evans's
9:36:43AM aftermarket sniff test is not valid.

9:36:46AM Would you explain the basis for that conclusion?

9:36:49AM A. Sure.

9:36:50AM In an ordinary sniff test, you would want demand
9:36:54AM elasticities. You would want to know how demand responds to
9:36:57AM changes in price.

9:36:58AM In a platform, you want those demand own price
9:37:05AM elasticities on both sides of the platform.

9:37:08AM In addition, you want to know the indir- -- the strength
9:37:12AM of indirect network effects. How does one side react to
9:37:16AM changes in the participation of the other side and vice versa.

9:37:20AM So that's really four quantities. Four price
9:37:24AM elasticities -- two price elasticities, excuse me. And two,
9:37:28AM if you will, indirect network effects elasticities.

9:37:32AM Professor Evans does have a price elasticity. He relies
9:37:37AM on Professor Rossi's survey, which I think is -- is far from
9:37:41AM perfect. But he relies on that survey to get a price
9:37:47AM elasticity for consumers.

9:37:49AM Q. How can Dr. Evans claim to perform a valid sniff test in
9:37:54AM that context without estimates of the other three quantities?

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9:37:56AM A. Well, basically by -- by assuming that producers don't have much choice. So if there's an increase in the App Store commission, he acknowledges that will reduce consumer demand. That's that first price effect.

9:38:14AM And it would have two effects on developers. It would, first of all, reduce the demand for apps, but second of all, it would make sales of apps less profitable. But he says, well, developers won't leave the -- the iOS system; therefore, developers don't react at all to these two changes.

9:38:35AM But that's assuming that developers have only the choice of go or stay. Developers can decide where to bring out products. Developers can reallocate engineering resources. Developers can reallocate marketing resources. Developers have a lot of choices short of leaving or not leaving.

9:38:55AM I think it's reasonable to assume that they would react to some extent. Zero is too strong. If they react to some extent, there is a feedback effect.

9:39:06AM If they react by reducing resources devoted to the App Store, that will cause a further reduction in consumer demand. That's the step that's missing, and that further reduction in consumer demand would, again, affect developers.

9:39:24AM So by -- by giving developers no ability to react, he's shortcircuiting the proper sniff test.

9:39:35AM Q. Are you aware that Dr. Evans claims that Apple could raise its profits considerably by raising its commission rate?

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9:39:43AM **A.** I am. And that -- that sort of proves my point. If the App store were maximizing profit and his analysis were correct, it would reveal that it couldn't profitably raise price because it would have done so.

9:39:57AM The -- the most probable reason he comes up with his conclusion is that he has, in effect, neglected indirect network effects, which, by the way, we both agree are strong here.

9:40:03AM **Q.** Changing subject somewhat, Dr. Evans argues that the App Store has very high operating profit margins and that this shows that the App Store has monopoly power.

9:40:10AM Do you agree?

9:40:22AM **A.** No.

9:40:24AM **Q.** Why not?

9:40:24AM **A.** Well, there's several reasons. Let me -- let me tic them off. First, economists normally look at profitability as a rate of return on investment and -- and recognize that accounting measures of the rate of return on investment have biases so that having a high accounting rate of return on investment doesn't establish the existence of high economic profits.

9:40:54AM But that's not the main problem. The main problem is the operating margin is not a measure of profitability. Simple example: Two factories producing the same product selling at the same price in a competitive market. One of them has

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9:41:12AM invested a lot in machinery and has one worker. The other
9:41:16AM factory really hasn't made much of -- by way of investment and
9:41:19AM has a lot of workers.

9:41:21AM Well, the mechanized factory is going to have lower
9:41:25AM operating costs, so it's going to show a higher operating
9:41:29AM margin. That signifies nothing. That signi- -- doesn't mean
9:41:34AM it's more profitable. It could have a really terrible rate of
9:41:38AM return on all that machinery, but it will have a higher
9:41:41AM operating margin.

9:41:41AM It's just not a measure of profitability.

9:41:46AM Q. Professor, did you hear Dr. Evans argue that any biases in
9:41:51AM the accounting data he relies on can be dealt with by
9:41:54AM comparing documents that -- that have App Store -- the App
9:41:59AM Store's operating margins with a set of other online market
9:42:03AM prices?

9:42:03AM A. I'm aware of that. And -- if they were really comparable,
9:42:09AM fully comparable across the board, that might be a -- a fair
9:42:14AM argument. But he hasn't shown comparability.

9:42:16AM And I -- I know a bit about these other stores, but it's
9:42:21AM not in the record, so let me just say that Apple stands out as
9:42:26AM selling devices, and Apple stands out as putting a lot of
9:42:31AM R & D into devices and the operating system, which benefit and
9:42:37AM pull transactions through the App Store.

9:42:39AM I don't think any of the other comparisons that he has
9:42:45AM have that characteristic, and he certainly hasn't shown that

9:42:50AM

they're sufficiently similar for his argument to be valid.

9:42:54AM

Q. Did you hear or read Mr. Sweeney's testimony agreeing that if someone were to point at one product or service that his company offers and declare a precise profit margin for it, that assessment would be fundamentally flawed?

9:43:07AM

A. I did and -- and he gave the reason. And that's because

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in the -- in the Epic Game Store and the Epic operation, the -- technology is developed -- it's used in multiple places in the business, and you can't allocate that joint cost in any way that's not arbitrary among products or services.

9:43:32AM

Q. Does -- does the same problem affect the estimates of the App Store's operating margin that Dr. Evans has relied on?

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A. Yes. R & D that affects the -- that improves the operating system, that improves the devices, is a joint cost.

9:43:52AM

It will benefit sales of those devices. It will also benefit transactions in the App Store. And there are simply no nonarbitrary way to allocate costs like that among lines of business.

9:44:09AM

Q. And why is the concept of joint costs relevant here?

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A. Well, let me say -- let me give the classic example of a joint cost just to -- just to be -- be clear, if I may.

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The classic example from somebody in the 19th Century is raising steers to produce both meat and hides. And the cost of feed for the steer -- for a steer can't be allocated between meat and hide. There's no unambiguous way to --

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there's no nonarbitrary way to do that.

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Similarly, R & D that affects all aspects of Apple's business can't be allocated to individual lines of business or parts of the business in a way that isn't just arbitrary.

9:44:51AM

Q. What -- what, then, would be the correct approach to analyzing the App Store's economic -- economic profitability?

9:44:55AM

A. Mr. Swanson, this is like asking me the best way to square the circle. You can't do it. There is simply no economically meaningful way to allocate joint costs among several products or services.

9:45:01AM

Q. Professor, do you believe it's important to consider output in the analysis of competitive or alleged anti-competitive effects?

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A. I do. That was a major part of -- major argument in the amicus brief that Dr. Evans and I filed in the *AmEx* case.

9:45:12AM

Q. And, you know, what -- what was the point you made in that amicus brief?

9:45:16AM

A. Well, I -- I don't have the language off the top of my head, but basically when -- when the price -- particularly when the pricing system's complicated. I don't think it was that complicated in *AmEx*. But when the pricing system is complicated, it may be hard to figure out what is the price. Did the price go up or down.

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Here, you can argue about what the commission rate is depending on how you treat free transactions. But output is

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typically an easier quantity -- at least the dollar value of output is an easier quantity to measure. And the argument we -- we made is that without proof that there is an output restriction flowing from the challenged practice, there's no reason to think it's anti-competitive. That ought to be a first requirement.

9:46:40AM

Q. In your opinion, has Dr. Evans assessed whether Apple's conduct has restricted output?

9:46:45AM

A. He hasn't. I believe he's -- he's considered output, but he hasn't really analyzed it. And if you look at it, the results are pretty dramatic.

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I mean, in the AmEx case, the Supreme Court observed that there was a 30 percent -- excuse me -- a 30 percent increase in output over -- over five years. I think that was in payment card output, and it called that dramatic. That is, I think, a 5.4 percent annual rate of growth, which means that output doubles in 13 years, more or less, which is pretty dramatic.

9:47:08AM

Here, both developer revenue from game apps and developer revenue from all apps increased at around 50 percent a year from 2010, when Dr. Evans said the App Store became a monopoly, through 2018. That's doubling in less than 2 years.

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If 5.4 percent is dramatic, this is wildly dramatic. And, you know, it was a good period for -- for IP in general and for games in general, so one -- one wants to ask -- one wants

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9:48:01AM to look for a different benchmark.

9:48:03AM There is a third-party estimate of total spending on digital game transactions over that same period, 2010 to 2018. And it shows industry-wide growth about half as rapid as growth through the App Store.

9:48:21AM Now, if when Apple became a monopoly in 2010, it put the brakes on output growth in order to increase its profit, you wouldn't expect that. You would expect growth in the App Store to be less than market wide growth. Instead, as far as we can tell, it was noticeably more rapid.

9:48:43AM In any case, Dr. Evans has not shown any output restriction.

9:48:51AM Q. Professor Schmalensee, just like to wrap this up with a final question or two. Your --

9:48:59AM Well, let me -- let me ask you this generally. Do Dr. Evans' arguments in this case have economic implications for the business models of the console manufacturers?

9:49:10AM A. Oh. They do. Dr. Evans argues that requiring all apps to go through your App Store is -- is a violation, or -- or he supports Epic's contention it's a violation and that using your own -- requiring the use of your own payment system is a tie.

9:49:29AM The console manufacturers do both. And he's attempted to distinguish them. He says, well, they're smaller. That's true. And they don't make money on hardware. That may well

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9:49:43AM be true. It's the general understanding. But what Dr. Evans
9:49:47AM hasn't done is to show why that matters, to show why if
9:49:52AM Apple's conduct is -- is illegal because of those aspects, why
9:49:57AM the console manufacturers don't have the same problem.

9:50:03AM **Q.** Do Dr. Evans arguments have implications for the business
9:50:06AM models of -- of any other online app stores?

9:50:09AM **A.** Well, they do. And I gather Professor Rubinfeld's going
9:50:14AM to discuss some broad implications. But let me just say this:
9:50:18AM I mentioned -- didn't manage a complete list, but I've
9:50:21AM mentioned a number of online app stores that require use of
9:50:26AM their own payment systems to collect commissions.

9:50:30AM Dr. Evans would say that's a tie. And he's argued that
9:50:34AM that's a tie. Well, if that's a tie, then both Apple and all
9:50:40AM of these other stores have to try to figure out some other
9:50:44AM way, likely more expensive way, to collect commissions.

9:50:51AM **Q.** And finally, Professor Schmalensee, do Dr. Evans'
9:50:56AM arguments have implications for potential new operating system
9:51:01AM entrants?

9:51:01AM **A.** Sure. Dr. Evans has said that Apple didn't have to open
9:51:05AM its system to third-party applications when it did in 2008.
9:51:11AM But if it had, since it did, in 2010, it should have basically
9:51:17AM adopted the remedy that Epic seeks, dropping the exclusivity
9:51:22AM on distribution and dropping the requirement to use IAP.

9:51:28AM Well, if I were a new entrant, I would realize that if I
9:51:34AM opened my system to third-party app developers and if I were

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- 9:51:38AM successful and if Epic prevails here, then I would have to
9:51:43AM radically change my business model if I were very successful.
- 9:51:47AM The safe thing would be not to allow third-party apps in
9:51:51AM the first place. And given how successful the iOS ecosystem
9:51:59AM has been with third-party apps for the benefit of consumers,
9:52:03AM app developers, and indeed Apple itself, that would be an
9:52:06AM unfortunate choice.
- 9:52:08AM Q. Right.
- 9:52:08AM Thank you. Professor Schmalensee.
- 9:52:10AM I pass the witness.
- 9:52:12AM **THE COURT:** Cross?
- 9:52:12AM **THE WITNESS:** May I sneak a drink of water while
9:52:20AM they --
- 9:52:21AM **THE COURT:** Absolutely.
- 9:52:21AM **THE WITNESS:** -- relief pitcher comes in? Yeah.
- 9:52:24AM **THE COURT:** Any time you need it, just let us know.
- 9:52:27AM (Pause in the proceedings.)
- 9:52:27AM **THE COURT:** You may proceed, Mr. Bornstein.
- 9:52:53AM **MR. BORNSTEIN:** Thank you, Your Honor. Gary
9:52:54AM Bornstein for Epic.
- 9:52:27AM **CROSS-EXAMINATION**
- 9:52:27AM **BY MR. BORNSTEIN:**
- 9:52:27AM Q. Professor Schmalensee, nice to see you again.
- 9:52:57AM A. Good to see you again, Mr. Bornstein.
- 9:53:00AM Q. Almost in person this time with a little plexiglass

9:53:03AM between us.

9:53:04AM **A.** Almost. Almost.

9:53:05AM **Q.** Let me just start with the last topic you discussed with

9:53:08AM Mr. Swanson. Your testimony, if I understood it, was that a

9:53:12AM potential new operating system entrant would look at the

9:53:16AM possibility that Apple was required to open its system and

9:53:22AM would decide that the right thing to do would be not to have

9:53:28AM third-party apps at all?

9:53:30AM Did I understand that correctly?

9:53:33AM **A.** I didn't say it would necessarily be the decision. I

9:53:36AM would say that the thought of having third-party apps and then

9:53:40AM facing the -- the potential of having to change business

9:53:43AM model -- after all, Apple only had the App Store for two years

9:53:47AM before Dr. Evans said it was a monopoly.

9:53:50AM **Q.** I'm sorry.

9:53:50AM (Simultaneous colloquy.)

9:53:51AM **THE WITNESS:** -- consideration.

9:53:52AM **BY MR. BORNSTEIN:**

9:53:52AM **Q.** -- just asked if I --

9:53:52AM **A.** I'm sorry.

9:53:52AM **Q.** -- if I understood your testimony correctly.

9:53:54AM **A.** May I hear your question.

9:53:58AM **Q.** Okay.

9:53:58AM Did you testify that a -- a potential new entrant would

9:54:04AM conclude that the right thing to do may be not to offer

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9:54:09AM

third-party apps at all?

9:54:10AM

A. I didn't say it would conclude that the right thing to do would be to not be to offer third-party apps. I said it would take that possibility into consideration.

9:54:21AM

Q. And it would weigh that against the indirect network effects that you've testified about so much, which would clearly benefit the operating system provider if it had third-party apps, correct?

9:54:33AM

A. It would benefit it until it got sufficiently successful to fall afoul of whatever would be established in this case if Epic prevails.

9:54:45AM

Q. And your testimony is that a -- an operating system provider would actually consider not having third-party apps in order to avoid the possibility that it would become so successful that it would at that point need to open up its system?

9:55:01AM

Do you think that's a reasonable outcome here?

9:55:03AM

A. Well, I don't know what "so successful" is. I do know that an alternative --

9:55:08AM

Q. I'm sorry. I didn't ask about an alternative. I asked if you thought that was a reasonable outcome here.

9:55:13AM

A. It is a plausible outcome is -- it is a possible outcome. Is it inevitable? No.

9:55:21AM

Q. And, in fact, in the real world, when Apple launched the iPhone without third-party apps, it quickly realized that in

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9:55:27AM order to have the kind of success that it's had, it needed to
9:55:31AM open the store, over Mr. Jobs' initial objection; isn't that
9:55:34AM right?
9:55:35AM **A.** I'm unaware of the internal debate, but that is -- that is
9:55:40AM certainly what happened.
9:55:41AM **Q.** Okay.
9:55:42AM **A.** It could --
9:55:43AM **Q.** Thank you?
9:55:43AM **A.** -- have engaged in --
9:55:45AM **Q.** Thank you.
9:55:48AM **MR. SWANSON:** Your Honor, can Professor Schmalensee
9:55:49AM be allowed to finish his answers?
9:55:51AM **THE COURT:** You have -- he's a world-renowned expert.
9:55:55AM I am sure he has dealt with cross-examination before. He
9:55:57AM seems to be managing just fine. You'll have redirect.
9:56:00AM Proceed.
9:56:02AM **BY MR. BORNSTEIN:**
9:56:02AM **Q.** And I'll do my best not to be rude, so I'd just appreciate
9:56:05AM if I have an answer to the question, and Mr. Swanson will give
9:56:08AM you an opportunity to expound, if -- if that's appropriate.
9:56:10AM **A.** I recognize that.
9:56:11AM **Q.** Thank you. I thought we did well last time. Hope we do
9:56:15AM well again.
9:56:15AM **A.** It was a civilized deposition. I will say that.
9:56:18AM **Q.** Thank you.

9:56:20AM I'd like to go back to a conversation that you had about
9:56:22AM the anti-steering rules a little earlier this morning.
9:56:24AM Do you remember that discussion?
9:56:26AM **A.** Vividly.
9:56:26AM **Q.** And you testified that your understanding of the rules --
9:56:29AM again if I heard you correctly, was that they prohibit a call
9:56:33AM to action saying that the -- the user may save money; is that
9:56:38AM right?
9:56:38AM **A.** I think "call to action" may be the phrase in the rule, in
9:56:43AM fact, yes.
9:56:43AM **Q.** Okay.
9:56:43AM But the rule goes further than just prohibiting a call to
9:56:46AM action and indicating that it would save the user money.
9:56:51AM Right? It goes further than that.
9:56:55AM **A.** Well, you'll have to quote me the rule. I thought that
9:56:57AM was the core of the rule.
9:56:59AM **Q.** Well, the rule also prohibits any call to action at all,
9:57:03AM even if it doesn't say something about the price available on
9:57:05AM to alternative platform.
9:57:06AM Isn't that correct?
9:57:07AM **A.** I'd have to hear the rule to be sure.
9:57:11AM **Q.** Okay. You don't know sitting here now?
9:57:14AM **A.** I've heard it, but I'd need to hear it again to be
9:57:17AM positive.
9:57:17AM **Q.** Okay.

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9:57:17AM And so do you -- do you know one way or the other whether
9:57:20AM the rule goes even further and prohibits targeted
9:57:25AM communications outside of the app to users, such as through
9:57:30AM email that have been registered through the app?

9:57:32AM Do you know that?

9:57:33AM **A.** It does, I believe, prohibit that. It doesn't -- it
9:57:38AM prohibits taking advantage of the linkage to communicate the
9:57:43AM existence of an alternative.

9:57:44AM **Q.** Right.

9:57:44AM It prohibits communication sent to points of contact that
9:57:48AM are targeted, such as targeted emails to users.

9:57:53AM **A.** That's my understanding.

9:57:58AM **Q.** Okay.

9:57:58AM One other issue that you discussed with -- with
9:58:01AM Mr. Swanson this morning I want to touch on, but -- actually,
9:58:04AM maybe more than one.

9:58:07AM You testified that the market that was at issue in the
9:58:15AM in-app purchase payment solution field was -- I think you
9:58:22AM testified relatively small; is that right?

9:58:24AM **A.** Well, I didn't endorse that market definition. What I
9:58:34AM intended to say was if anything's been foreclosed by IAP, IAP
9:58:40AM is relatively -- is small relative to the universe of in-app
9:58:45AM payment processing.

9:58:46AM **Q.** All right. So you're talking about relative smallness
9:58:50AM rather than absolute dollar figures.

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9:58:52AM **A.** Absolutely.

9:58:52AM **Q.** Okay.

9:58:53AM And do you know what the --

9:58:54AM **A.** That's what I -- that's what I said. Sorry.

9:58:56AM **Q.** That -- that's fine. That's why I asked the question.

9:58:59AM Do you know what the absolute dollar figures are that have been foreclosed by this conduct?

9:59:00AM **A.** Oh, I could estimate, but I don't know them off the top of my head. They're in the billions, obviously. But I don't have them on the top of my head.

9:59:15AM **Q.** The tens of billions, right?

9:59:17AM **A.** On that order, yes. But "small" relative to the world of online payment processing.

9:59:24AM **Q.** And earlier during Mr. Swanson's examination, you talked about what I believe you called an iOS platform that had multiple elements to it.

9:59:32AM Do you recall that?

9:59:35AM **A.** I -- yeah, let me be clear. I talked about the iOS business as a platform that had multiple elements.

9:59:43AM **Q.** Fair enough.

9:59:47AM **A.** So I talked about the business, yeah.

9:59:49AM **Q.** And -- and you talked about three elements, correct?

9:59:52AM **A.** I did, yes.

9:59:53AM **Q.** And one of them was the device itself, the hardware, correct?

9:59:55AM

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9:59:56AM

A. Correct.

9:59:57AM

Q. One of them was the iOS operating system, correct?

10:00:01AM

A. Correct.

10:00:02AM

Q. And the third one was the -- the App Store; is that --

10:00:06AM

A. Correct.

10:00:07AM

Q. And those are three separate, identifiable pieces of

10:00:13AM

this -- of this iOS business; isn't that right?

10:00:16AM

A. Well, they're identifiable in one sense that you can point

10:00:22AM

to them, as you just did, and we can say that the operating

10:00:26AM

system is distinct from the hardware.

10:00:28AM

They're not distinct in the sense that --

10:00:30AM

Q. Thank you, sir.

10:00:30AM

A. -- separate costs.

10:00:31AM

Q. -- answered the question.

10:00:32AM

A. Sorry.

10:00:33AM

Q. Now, but let's take the -- take that -- that taxonomy and

10:00:40AM

apply it over to a different device.

10:00:42AM

So you're familiar with Microsoft, obviously, as you

10:00:48AM

testified, correct?

10:00:48AM

A. It's been a while, Counsel, but, yes, I'm broadly familiar

10:00:52AM

with Microsoft.

10:00:53AM

Q. So Microsoft has an operating system called Windows.

10:00:56AM

A. They do.

10:00:56AM

Q. And Windows runs on laptop computers like Lenovo

10:01:01AM

computers?

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10:01:01AM

A. Which is exactly what I have, yes.

10:01:04AM

Q. I do, too.

10:01:05AM

And you can also get on your Lenovo computer running a Windows operating system an online marketplace such as Steam, correct?

10:01:10AM

10:01:15AM

A. Yes.

10:01:16AM

Q. And those are three separate elements of the platform that you would then be using, correct?

10:01:21AM

A. Well, I wouldn't consider Steam an element of the Microsoft platform since Steam is owned by Valve, as I recall.

10:01:23AM

10:01:26AM

10:01:30AM

Q. And so the only reason that you consider the three

10:01:36AM

elements of the iOS business as part of the platform is that

10:01:40AM

they're all owned by Apple?

10:01:42AM

A. Right. And they have joint costs and they -- there are indirect network effects linking them and so on and so forth.

10:01:46AM

But that's why I described the business.

10:01:50AM

Q. Right.

10:01:52AM

So it is the -- the integrated nature of this as a result of Apple's choice as to how to run its business rather than an inherent feature of any of these particular products, correct?

10:02:02AM

A. Not sure what you -- sorry. Not sure what you mean by an inherent feature, but it is certainly Apple's choice as to how to organize its business.

10:02:10AM

Q. And it is Apple's choice as to how to organize its

10:02:14AM

business that is the reason that you testify that these are

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10:02:21AM

integrated with one another, correct?

10:02:23AM

A. I was describing Apple's business, yes.

10:02:26AM

Q. Thank you.

10:02:26AM

Let -- let's turn back to two-sided platforms. Am I correct that the -- a two-sided analysis of the business is neither pro-defendant nor pro-plaintiff?

10:02:41AM

A. You asked that in my deposition, and I answered that is correct, and it's still correct.

10:02:50AM

Q. Great.

10:02:50AM

And in the wake of the *AmEx* decision that we've talked about for some time, there were a number of commentators who took a contrary view, correct?

10:03:02AM

A. There were some, yes; that's correct.

10:03:07AM

Q. And you took to the airwave, so to speak, or the -- the print airwaves to dispute that notion, correct?

10:03:15AM

A. Along with Dr. Evans, yes.

10:03:17AM

Q. Yes, indeed. And you said that the two-sided analysis does not make platform bases a no-go zone for the antitrust laws, correct?

10:03:22AM

A. I don't know if I used those words or if John Troll used those words, but I agree with them.

10:03:26AM

Q. Great.

10:03:32AM

And you still agree with them today?

10:03:35AM

A. I do.

10:03:36AM

Q. And you have in this matter opined that if the core firms

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10:03:43AM under review are two-sided transaction platforms, then under
10:03:51AM AmEx only other two-sided transaction platforms should be
10:03:55AM considered in the market, correct?
10:03:56AM **A.** Well, let me be clear, Counselor. My understanding was --
10:04:01AM **Q.** I'm sorry. The question first, is that an opinion that
10:04:04AM you have expressed in this case, sir?
10:04:05AM **A.** Let me -- if I used those words, then I used those words.
10:04:12AM But it's a question of what "under AmEx" means.
10:04:15AM **Q.** Well, is -- is that a legal opinion that you offer?
10:04:17AM **A.** It would have been a legal opinion because it has been
10:04:22AM argued that AmEx compels exclusion of single-sided competitors
10:04:27AM from market definitions. Single-sided competitors, obviously,
10:04:31AM compete with two-sided platforms, as Dr. Evans and I have both
10:04:36AM said.
10:04:36AM **Q.** Right. So you -- you agree that single-sided businesses
10:04:41AM can compete --
10:04:43AM **A.** Businesses.
10:04:43AM **Q.** -- with a two-sided platform in a single market, right?
10:04:48AM **A.** I do, yes.
10:04:49AM **Q.** And, in fact, you have taken the position that this case
10:04:52AM presents such a market.
10:04:53AM Correct?
10:04:54AM **A.** I've taken the position that direct distribution can, in
10:05:04AM principle, compete with distribution through app stores, yes.
10:05:08AM **Q.** Right.

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10:05:08AM You -- you, in fact, have gone further than that, and you
10:05:11AM said that direct distribution does compete with online market
10:05:16AM places like two-sided platform app stores, correct?

10:05:21AM **A.** Where direct distribution happens, it competes with app
10:05:24AM stores, yes.

10:05:26AM **Q.** Right.

10:05:26AM It doesn't happen on the iOS platform because Apple
10:05:28AM forbids it.

10:05:30AM **A.** That's why I was hedging.

10:05:32AM **Q.** All right.

10:05:32AM And that makes the market at issue here, unlike the market
10:05:36AM in *AmEx*, a hybrid market, consisting of both two-sided
10:05:41AM businesses or two-sided platforms and single-sided businesses,
10:05:46AM correct?

10:05:46AM **A.** I think that's right. The market in *AmEx* was clearly
10:05:50AM composed of two-sided platforms unless you include cash, and
10:05:56AM then it gets be -- but it wasn't included.

10:05:58AM **Q.** And so as an economic matter, we're dealing with something
10:06:00AM different from *AmEx* in that respect, correct?

10:06:02AM **A.** In that respect.

10:06:04AM **Q.** Very good.

10:06:05AM Now, one of the things as we've talked about some this
10:06:08AM morning that makes the analysis of two-sided platforms more
10:06:13AM complicated is the existence of indirect network effects,
10:06:18AM correct?

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10:07:01AM
10:07:10AM
10:07:14AM
10:07:18AM
10:07:19AM
10:07:21AM
10:07:26AM
10:07:29AM
10:07:30AM
10:07:34AM
10:07:36AM

A. That's correct.

Q. And you talked a little bit about a feedback effect this morning, correct?

A. I did.

Q. And depending on the particular platform at issue, those feedback effects can be stronger or weaker, correct?

A. Correct. Except in the case of transaction platforms, they're generally strong.

Q. And -- and there are particular names that economists use to describe the -- the strengths of these things. You used some this morning, like cross-price elasticity and so forth.

A. Well, I don't think I said "cross-price elasticity." I could have, but we tend to use elasticities as a measure of strength.

Q. And in analyzing a two-sided platform and the potential competitive consequences of conduct relating to that platform, it is important to consider the strength of the indirect network effects at issue, fair?

A. Yes.

Q. And you haven't done anything in this case to analyze the strength of the indirect network effects associated with the App Store, correct?

A. As I think I said in my written testimony, I don't think this record has information that would permit one to estimate that strength.

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10:07:37AM Q. But you do recognize, I believe, that most smartphone users have either an iOS or an Android but not both, correct?

10:07:49AM A. I certainly recognize that.

10:07:50AM Q. And that's something that the antitrust folks like you -- excuse me -- the economics folks like yourself call "single-homing," right?

10:07:58AM A. Yeah. For unfortunate reasons, yes.

10:08:00AM Q. And in single-homing situations, competition between customers is typically a winner-take-all struggle for all of the business from the users on the single-homing side of the platform, correct?

10:08:11AM A. It has aspects of that, but it depends in part on switching costs. The notion that a competitor will get all of the buyers on one side requires special extra assumptions.

10:08:16AM Q. Right.

10:08:32AM The higher the switching costs, the more likely it is that there will be a winner-take-all situation, correct?

10:08:36AM A. Well, you need more than that. You need there only to be one or a dominant competitor trying to capture those folks just because --

10:08:47AM Well, let me stop there.

10:08:48AM Q. Okay. Well, sir, you've written, haven't you, that competition for single-homing customers is a winner-take-all struggle for all of their business, right?

10:08:52AM Those are your words.

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10:09:01AM A. I must have said it if you -- if you tell me I said it.

10:09:05AM It seems pretty careless to me because if there are two of us competing, it's not obvious why one of us will get them all.

10:09:09AM Q. You don't dispute that you've written that -- that you've written that in an academic journal, sir?

10:09:14AM A. Boy, I'd love to see the context. It seems very -- a very strange statement for me to make, because it doesn't make -- of course, I do make sentences that don't make a lot of sense. But that one doesn't seem to make a lot of sense.

10:09:20AM Could you show me the context in which I said it

10:09:24AM because --

10:09:27AM Q. I'll give you a little more information to start, sir.

10:09:30AM You remember an instant classic? That's something you wrote?

10:09:32AM A. Oh, yeah, yeah, yeah. This is -- this is about -- okay.

10:09:35AM Yeah. This is --

10:09:37AM (Simultaneous colloquy.)

10:09:40AM Q. You remember writing that, sir.

10:09:44AM A. I'm happy to describe it and say why I said what I said, if you like that.

10:09:46AM Q. Well, let me read to you first the prior -- well, we can pull it up on the screen perhaps. That might make things easier.

10:09:49AM

10:09:52AM

10:09:53AM

10:09:55AM

10:09:59AM

10:09:59AM PX1997.

10:10:01AM (Exhibit published.)

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10:10:04AM **BY MR. BORNSTEIN:**

Q. And I'm looking at page 177.

(Exhibit published.)

10:10:18AM **MR. BORNSTEIN:** Great.

10:10:18AM Q. And we can see the prior sentence there in the middle of
10:10:20AM the -- the middle paragraph on the middle of the page. You
10:10:24AM say, "In the case of smartphone operating systems, for
10:10:27AM instance, most consumers single-home at any one time while
10:10:32AM many developers multi-home by writing apps for both Android
10:10:36AM and Apple's iOS."

10:10:38AM A. Ah.

10:10:39AM Q. And then you go on, "competition for single-homing
10:10:42AM customers is a winner-take-all struggle for all of their
10:10:45AM business."

10:10:45AM Correct?

10:10:46AM A. Yeah.

10:10:48AM Q. That --

10:10:48AM (Simultaneous colloquy.)

10:10:49AM **THE WITNESS:** I did say that, and I will now explain
10:10:51AM that you -- you've kind of misinterpreted what I meant.

10:10:54AM **BY MR. BORNSTEIN:**

10:10:54AM Q. Well, let me --

10:10:55AM (Simultaneous colloquy.)

10:10:55AM **BY MR. BORNSTEIN:**

10:10:55AM Q. Excuse me, sir.

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10:10:57AM

A. Can I explain what that means?

10:10:59AM

Q. Well --

10:10:59AM

THE COURT: Probably on redirect.

10:11:01AM

THE WITNESS: Okay. Then I do not doubt that I said those sentences -- wrote those sentences.

10:11:07AM

BY MR. BORNSTEIN:

10:11:08AM

Q. And it is, in fact, the case that when there are switching costs that are high and when you have customers who single-home for that reason, then the situation is much closer to or resembles the situation in which there is a monopoly provider, correct?

10:11:13AM

A. Well, we're now completing mixing modes, and I'd say no. I'd say this is completely unrelated to switching costs, and we'll -- we'll spend some time on it on redirect, but it is unrelated to switching costs.

10:11:17AM

10:11:24AM

10:11:28AM

10:11:29AM

A. Well, we're now completing mixing modes, and I'd say no.

10:11:32AM

I'd say this is completely unrelated to switching costs, and we'll -- we'll spend some time on it on redirect, but it is unrelated to switching costs.

10:11:35AM

10:11:39AM

Q. Sir --

10:11:42AM

A. It's a very simple point.

10:11:43AM

Q. Sir, you do remember your deposition, right? We talked about it a little bit already.

10:11:46AM

A. I do remember that, and I'm happy to say I said what you said in my deposition. I'm only saying that it's unrelated to this. And it says if there's -- if I can't switch platforms, then the platform's a monopoly.

10:11:49AM

Q. Right. So --

10:11:52AM

A. That's simple.

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10:12:00AM There may be multiple suppliers on the other side of the
10:12:03AM platform. But as far as the platform's concerned, if by the
10:12:07AM assumption you gave me, I can't switch platforms, yeah, then
10:12:11AM it's a monopoly.

10:12:13AM **Q.** Right.

10:12:13AM And -- and what you testified was that if the reason
10:12:16AM consumers single-home is that it's very difficult for them to
10:12:20AM switch, then the situation resembles the situation with a
10:12:23AM monopoly provider, correct?

10:12:25AM **A.** By definition. By assumption.

10:12:28AM **Q.** And so when one side single-homes, the feedback effect
10:12:33AM that you talked about earlier is weaker. Correct?

10:12:35AM **A.** Those are not closely related. Single-homing has to do
10:12:46AM with what do you -- what do you normally do. If you are
10:12:52AM single-homing because there are strong switching costs, then
10:12:55AM the feedback effects are attenuated.

10:12:58AM And of course, different people will always have different
10:13:01AM switching costs, but that's right.

10:13:03AM **Q.** All right.

10:13:03AM (Simultaneous colloquy.)

10:13:03AM **THE WITNESS:** Single-homing by itself doesn't do the
10:13:06AM trick you want it to do.

10:13:07AM **BY MR. BORNSTEIN:**

10:13:07AM **Q.** And that was my question, sir. When you have
10:13:08AM single-homing and there are high switching costs, then the

10:13:12AM feedback effect is weaker, correct?

10:13:15AM **A.** That's correct.

10:13:16AM **Q.** All right.

10:13:16AM And what you call the death spiral would be weaker,

10:13:20AM correct?

10:13:20AM **A.** Well, I didn't use the "death spiral" this morning, but

10:13:23AM it's in my testimony someplace.

10:13:25AM **Q.** And here, we have a situation in which developers on the

10:13:31AM other hand are motivated to multi-home because consumers don't

10:13:36AM often switch, right, between iOS and Android?

10:13:39AM **A.** Consumers do switch, but the switching probabilities are

10:13:42AM relatively low under current conditions.

10:13:44AM **Q.** Consumers don't often switch. "Yes" or "no," sir?

10:13:48AM **A.** The numbers are what they are. And if you declare that

10:13:50AM "not often," I'll accept your characterization.

10:13:53AM **Q.** Let's look at your deposition, sir. I think it's --

10:13:56AM **THE COURT:** I need a copy of it.

10:13:58AM **MR. BORNSTEIN:** Of course, Your Honor.

10:13:59AM **THE COURT:** And you have two minutes.

10:14:07AM Thank you.

10:14:12AM **MR. BORNSTEIN:** May I approach, Your Honor?

10:14:13AM **THE COURT:** You may.

10:14:15AM **MR. BORNSTEIN:** (Handing document.)

10:14:17AM **THE WITNESS:** Thank you.

10:14:21AM **MR. BORNSTEIN:** And, Your Honor, I'm looking at

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10:14:22AM

page 48, starting at line 15.

10:14:37AM

THE COURT: Well --

10:14:38AM

THE WITNESS: Pagination's off.

10:14:39AM

THE COURT: There are a couple of sentences there, Mr. Bornstein.

10:14:41AM

What do you want him to do, just look at it? He --

10:14:46AM

MR. BORNSTEIN: I apologize, Your Honor. I didn't hear what you said.

10:14:49AM

THE COURT: I said there are a couple of sentences there. I don't see impeachment.

10:14:51AM

MR. BORNSTEIN: Well, I'll -- I'll read it into the record, Your Honor, and we can go from there.

10:14:56AM

Question was "And what is the economic motivation that the developer has to write for both devices?

10:15:03AM

"A. Consumers don't often switch."

10:15:05AM

Did -- did you give that testimony, sir?

10:15:08AM

THE COURT: But, Mr. Bornstein, that's why I said there's not impeachment, because he then said they do switch from time to time.

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MR. BORNSTEIN: Correct, Your Honor.

10:15:15AM

THE COURT: Okay. Which is consistent with what he testified to. That's why there was no impeachment.

10:15:22AM

MR. BORNSTEIN: I understand what Your Honor is saying.

10:15:24AM

THE COURT: It's 10:15.

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10:15:27AM

MR. BORNSTEIN: Very good.

10:15:27AM

THE COURT: Time for a break. We'll stand in recess for 20 minutes.

10:15:29AM

(Recess taken at 10:16 A.M.)

10:15:30AM

(Proceedings resumed at 10:35 a.m.)

6

THE COURT: All right. We are back on the record.

10:35:29AM

The record will reflect that the parties are present. The witness is on the stand.

10:35:33AM

Before we get started again, Mr. Bornstein, let me ask the parties, there have been a number of exhibits that have been referenced in the earlier exam and with you. I know that I'm agreeing to a stipulation, which is at Docket 635, that I think has, like, four or five pages' worth of exhibits that are coming into the record.

10:35:56AM

Are all of your documents in the record? I mean, is this something that we need to deal with during the course of the testimony or not?

10:36:07AM

MR. BORNSTEIN: I don't believe there is anything we need to deal with during the testimony, because the experts wouldn't be laying foundation for the documents. The parties are doing that through stipulation. So I don't think we need to get the documents admitted, unless the Court would like to do it that way.

10:36:21AM

THE COURT: That's fine.

10:36:21AM

Mr. Doren?

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10:36:23AM

MR. DOREN: Your Honor, I think this reverts back to the issue we discussed this morning in terms of working through the issues with the evidence. So I agree with Mr. Bornstein.

10:36:25AM

10:36:27AM

10:36:31AM

10:36:32AM

THE COURT: Okay. Then we'll just leave it at that.

10:36:35AM

Thank you.

10:36:35AM

You may proceed.

10:36:38AM

MR. BORNSTEIN: Thank you, Your Honor.

10:36:40AM

CROSS-EXAMINATION

10:36:42AM

BY MR. BORNSTEIN:

10:36:43AM

Q. Professor Schmalensee, you have testified a number of times before; correct?

10:36:47AM

A. I have, yes.

10:36:48AM

Q. Including in a courtroom?

10:36:49AM

A. Including in a courtroom. It's been a while, but I have.

10:36:52AM

Q. Okay. So you understand the rule that during your cross-examination and on break, you're not supposed to discuss the content of your testimony with counsel; is that right?

10:37:00AM

THE COURT: Actually, that's not the rule. There is no rule, and I -- I instruct witnesses when they cannot talk to counsel. I did not instruct him that he could not talk to counsel.

10:37:19AM

MR. BORNSTEIN: Okay. Thank you, Your Honor.

10:37:21AM

THE WITNESS: Thank you, Your Honor.

10:37:23AM

THE COURT: Lawyers are here for a reason. They

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10:37:25AM represent people and they help people. The only time that I
10:37:32AM specifically instruct witnesses not to do that -- and I think
10:37:34AM I've done that in this case maybe once or twice -- is when
10:37:37AM we're in the middle of an exam where I think the factual
10:37:41AM issues should not be influenced by lawyers. And that's when I
10:37:45AM make the instruction.

10:37:47AM Proceed.

10:37:48AM **MR. BORNSTEIN:** Thank you, Your Honor.

10:37:49AM **Q.** I'll move to a new topic for the second half of the
10:37:52AM morning session, which is market definition.

10:37:55AM And am I correct, Professor, that your opinion on the
10:38:03AM relevant product markets in this case relies on work done by
10:38:07AM some of the other experts in this matter?

10:38:09AM **A.** Yes.

10:38:10AM **Q.** All right. And in particular, you rely on empirical work
10:38:14AM done by Professor Hitt.

10:38:16AM **A.** Yes.

10:38:17AM **Q.** You have not made an effort to redo or check the accuracy
10:38:20AM of his empirical work; is that right?

10:38:23AM **A.** I have considered the methods he used. I've reviewed his
10:38:26AM testimony. I haven't checked his calculations.

10:38:30AM **Q.** And you didn't go back and check the underlying sources on
10:38:32AM which he relied and so forth?

10:38:35AM **A.** Oh, no, I did not.

10:38:36AM **Q.** You didn't go back and redo any of the analyses that

10:38:39AM Professor Lafontaine did either; correct?

10:38:43AM **A.** I did not.

10:38:44AM **Q.** Now, you agree that there's a tool that economists often use to define markets called a hypothetical monopolist test; correct?

10:38:52AM **A.** Yes.

10:38:53AM **Q.** And in theory, at least, I believe you agree that it would make sense to apply a hypothetical monopolist test to the market for game transactions that Professor Hitt has defined; correct?

10:39:09AM **A.** Yes. That can be done in a number of ways, but, yes, it would make sense.

10:39:15AM **Q.** Okay. And you didn't do that here?

10:39:18AM **A.** I did not do that.

10:39:19AM **Q.** And Professor Hitt did not do that here either; correct?

10:39:23AM **A.** Professor Hitt didn't do it in any detail.

10:39:26AM Professor Lafontaine did attempt to do that.

10:39:29AM **Q.** So we will hear from Professor Lafontaine, I believe, later today, but your understanding is that she performed a hypothetical monopolist test; correct?

10:39:37AM **A.** To the extent that the facts in the record permitted her to do that, she attempted to do that.

10:39:40AM **Q.** All right. And in your understanding, she did that by looking at what you called substitution possibilities; right?

10:39:47AM **A.** Or reasonable interchangeability, substitutability, yes.

10:39:58AM

Q. Okay. But without looking at actual substitution; correct?

10:40:01AM

A. Well, actual substitution isn't very informative if nothing changes, right? Because you want to see how responsive something might be to a price change, but it's hard to estimate that if nothing changes. An actual substitution may not be very informative about what a reaction would be.

10:40:06AM

Q. And you're saying actual substitution would not be informative as a general matter, or you're saying actual substitution would not be informative here because there is no price change that you have identified?

10:40:09AM

A. If there aren't price changes, actual substitution doesn't tell you what you need to know, which is reaction to a price change.

10:40:13AM

Q. You could also have reaction to the introduction of a new product involved, however; correct?

10:40:17AM

A. You would expect to have a reaction, yes.

10:40:20AM

Q. And that's a way that an economist could measure whether or not there was actual substitution; correct?

10:40:24AM

A. It might shed light on it, yes.

10:40:28AM

Q. Okay. And Professor Hitt actually tried to do that in this case, did he not?

10:40:32AM

A. Professor Hitt did some work on the reaction to the introduction of the Switch device, as I recall.

10:41:03AM

Q. And in particular, it was to the launch of the Fortnite

10:41:10AM

app on the Nintendo Switch; correct?

10:41:13AM

A. Thank you for the clarification. Yes, that is as I understand.

10:41:16AM

Q. And his conclusion was that the data that he reviewed associated with the launch of *Fortnite* on the Switch showed that users actually shifted play time and spending away from iOS and towards the Switch; correct?

10:41:23AM

A. Well, what he presented in the body of his expert report showed that in percentage terms they shifted. His Appendix G, which I confess I hadn't focused on before my deposition, deals with absolute levels of play and spending, but the text deals with relative changes.

10:41:33AM

Q. Right. And are you aware that in the written testimony that he submitted to the Court in this matter, he again states that the results of his analysis clearly showed that users shifted their play time and spending away from iOS following the launch of *Fortnite* on the Nintendo Switch?

10:41:39AM

A. I think that's based on an elaboration of the analysis that was contained in Appendix G of his rebuttal report. So I do believe that's his conclusion, yes.

10:41:43AM

Q. And that's a conclusion, as I think you said, about the relative usage of the iOS device and the Switch device for playing *Fortnite*; correct?

10:41:48AM

A. No. He called my attention and everybody's attention to Appendix G in that original report, which deals with absolute

10:41:52AM

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10:42:41AM levels, not relative levels. And I believed he -- I believe
10:42:44AM he focused on that analysis of absolute levels in his written
10:42:48AM testimony.

10:42:49AM Q. And the absolute levels of iOS use and Fortnite use show
10:42:58AM that there was an increase in total play; correct?

10:43:02AM A. I believe that's right, yes.

10:43:04AM Q. So your conclusion from reviewing Professor Hitt's
10:43:10AM materials was that the data he relied on did not support the
10:43:16AM strong conclusion he had reached regarding actual
10:43:19AM substitution; correct?

10:43:21AM A. The conclusion -- my testimony says that what was in his
10:43:25AM report, since I kind of missed Appendix G, was all about
10:43:29AM relative play, not about absolute play.

10:43:32AM Q. And then --

10:43:32AM A. And that's what I testified to, that the exhibits I had
10:43:36AM seen didn't support a conclusion on absolute play, again,
10:43:40AM having missed Appendix G.

10:43:42AM Q. So let's just be clear about what his testimony shows and
10:43:46AM doesn't show. And I'm not at all faulting you, sir, for
10:43:50AM having missed an appendix. I'd like to focus on the substance
10:43:57AM rather than having missed an appendix here or there.

10:43:59AM A. Thank you.

10:44:00AM Q. On the substance, Professor Hitt testified, including in
10:44:03AM his written testimony to the Court, that the relative decline
10:44:06AM in iOS Fortnite play after the launch of Fortnite on the

SCHMALENSSEE - CROSS / BORNSTEIN

10:44:12AM

Switch indicated actual substitution; correct?

10:44:18AM

A. I'd have to review his written testimony to verify that that's what he said. And the question is did he, when he said that, rely on an elaboration of that Appendix G analysis, which I gather is in his written testimony less obscure than in his rebuttal report.

10:44:35AM

Q. Well, let's do the math, sir.

10:44:37AM

You said he looked at percentages, so that means in his analysis, he looked at what percentage of people were playing *Fortnite* on iOS and then what happened to that number after *Fortnite* was launched on the Nintendo Switch --

10:44:51AM

A. That was --

10:44:54AM

Q. -- correct?

10:44:55AM

A. That was one of his analyses, and that was the analysis I was speaking of in my deposition.

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He also looked at absolute levels --

10:45:02AM

Q. Sir, one question at a time. We'll get there.

10:45:04AM

A. Well, but you're asking what he did, and he did two things.

10:45:07AM

Q. Right. And I was trying to take them one at a time.

10:45:10AM

A. Okay.

10:45:10AM

Q. So that was one of the things that he did?

10:45:12AM

A. Indeed.

10:45:13AM

Q. And you believe that that analysis does not show actual substitution; correct?

10:45:17AM

SCHMALENSSEE - CROSS / BORNSTEIN

10:45:20AM **A.** That analysis shows a change in the percentage of time
10:45:24AM played. It doesn't show that what you would expect it to show
10:45:30AM would be that there was a substitute -- a reduction in the
10:45:34AM play of *Fortnite* --
10:45:35AM **Q.** And it's --
10:45:36AM **A.** Sorry.
10:45:36AM -- on iOS.
10:45:38AM **Q.** It's almost a tautology -- in fact, perhaps is a
10:45:42AM tautology -- that the total amount of time on iOS -- excuse
10:45:47AM me -- the percentage of time on iOS would go down when there's
10:45:51AM a new device that's introduced; correct?
10:45:54AM **A.** Assuming you use the new device, yes. That goes by
10:45:58AM arithmetic.
10:45:59AM **Q.** Right. And that could happen even if all of the play on
10:46:02AM the new device on the Switch comes from brand-new users or
10:46:08AM comes from incremental new play time rather than people
10:46:13AM switching over from one device to the other; correct?
10:46:16AM **A.** I believe that's right.
10:46:17AM **Q.** Just as a matter of math.
10:46:19AM **A.** Just as a matter of math.
10:46:21AM **Q.** And then when you look at the absolute numbers, what you
10:46:26AM see is that when *Fortnite* was launched on the Switch, there
10:46:30AM wasn't substitution, but there was a total absolute increase
10:46:34AM in both play and spending; correct?
10:46:39AM **A.** I believe that's what Mr. Cragg's analysis showed. Again,

10:46:44AM

I haven't tried to verify the accuracy of his numbers, but that's what the exhibits showed.

10:46:47AM

Mr. -- Professor Hitt's analysis in his testimony focuses -- takes a different cut at it, reaches a different conclusion.

10:46:55AM

Q. And that's a conclusion that you don't think is supported by his analysis; correct?

10:47:01AM

A. I don't think the conclusion he reached about absolute play was supported by the analysis in the text of his rebuttal report.

10:47:11AM

Whether it's supported by his analysis of levels, I think, is a different matter. And I confess I haven't looked at it closely enough to have a firm opinion.

10:47:16AM

Q. In the situation in which there is a total increase in -- in play time, that's going to include both new users and people who are playing additional amounts of time. Either of those is possible; correct?

10:47:31AM

A. Yes.

10:47:37AM

Q. Rather than just people moving from one over to the other; correct?

10:47:41AM

A. Of course.

10:47:47AM

Q. And so in the only instance that any one of Apple's experts looked at of possible actual substitution, what Professor Hitt found was there was an overall increase in play and an insufficient basis to find actual substitution from one

10:48:00AM

10:48:04AM

10:48:08AM device to the other; correct?

10:48:12AM **A.** The part of his analysis -- as I say, he did two pieces.

10:48:16AM The first piece dealt with relative usage, and that didn't show actual substitution.

10:48:20AM The second piece, which is in that appendix and I believe is also in his written testimony, again, I'm not as familiar with it as I might be, but he would argue, and probably will argue, that it shows absolute substitution.

10:48:32AM **Q.** And you don't know, as you sit here now, whether Appendix G actually shows absolute quantities; is that right?

10:48:42AM **A.** Appendix G does, I believe, show absolute quantities.

10:48:45AM **Q.** And what it shows is there was an increase in overall quantities; correct?

10:48:48AM **A.** It shows there was an increase in play, yes.

10:48:50AM **Q.** And in revenue.

10:48:52AM **A.** I believe, yes. There were two charts in that appendix.

10:48:56AM **Q.** Going back to a hypothetical monopolist test, we've had some discussion about a SSNIP test during the trial.

10:49:04AM And a SSNIP test is a way to operationalize the hypothetical monopolist test; is that right?

10:49:11AM **A.** Yes.

10:49:13AM **Q.** And it's at least possible to do a SSNIP test for a two-sided market; correct?

10:49:19AM **A.** It is possible in theory. Dr. Evans has written a couple of papers that indicate how you would do that if you had the

10:49:27AM

data.

10:49:28AM

Q. And you testified this morning and in your written direct that you think Dr. Evans has not done that properly in this case.

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A. I did testify and I hold that opinion.

10:49:38AM

Q. And that's because, in your view, he didn't have sufficient data to do it the right way.

10:49:44AM

A. Well, I don't think any of us had sufficient data. He made strong assumptions in lieu of having actual quantitative estimates.

10:49:53AM

Q. And in Professor Lafontaine's hypothetical monopolist test, which you believe she performed, she, too, did it without having a precise elasticity; correct?

10:50:03AM

A. Correct.

10:50:04AM

Q. And she nevertheless came up with a market definition that you are comfortable with; correct?

10:50:11AM

A. Yes.

10:50:12AM

Q. Okay.

10:50:13AM

A. She looked at what people did, in fact, without data on SSNIP tests. She looked at reasonable interchangeability.

10:50:20AM

Q. And you take it a step further, and in your written testimony to the Court, you do a hypothetical, hypothetical monopolist test; correct?

10:50:36AM

A. I confess I didn't think of my testimony in that way, but perhaps you can -- you can tell me what you have in mind.

10:50:38AM

SCHMALENSSEE - CROSS / BORNSTEIN

10:50:42AM Q. Sure. Well, you say that you're confident that if you had the data to do a test and if you had done the test with that hypothetical -- hypothetical data, then you're confident that where it would land would be a market supportive of what Professor Hitt and Professor Lafontaine have defined; correct?

10:51:03AM A. I don't think I went that far in my written testimony.

10:51:06AM In my oral testimony this morning, I described why it -- you would get a larger output decline from a price increase. I didn't take that to a market definition.

10:51:20AM Q. Well, what you testified in your written direct, sir, was, "If the data were available, I believe that a properly conducted hypothetical monopolist test would lead to the conclusion that the relevant market for deemed transactions is broader than the App Store."

10:51:36AM Is that fair?

10:51:38AM A. That's fair.

10:51:40AM **THE COURT:** Mr. Bornstein, what paragraph?

10:51:42AM **MR. BORNSTEIN:** Oh, I apologize, Your Honor. That is paragraph 106.

10:51:46AM **THE COURT:** Thank you.

10:51:48AM **BY MR. BORNSTEIN:**

10:51:48AM Q. The -- there was some discussion this morning about Dr. Evans' testimony about distribution.

10:51:56AM Do you recall that?

10:51:57AM A. I do.

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Q. And you took issue with that terminology both in his testimony this morning and in some of his written papers; correct?

A. I did. It seemed to suggest a one-sided business.

Q. Okay. But you acknowledge that Dr. Evans has not looked only at the developer's side of the iOS platform in this matter; correct?

A. Well, it depends on the piece of the analysis, but by and large, he did not do that.

Q. Okay. And, in fact, he testified even very directly in response to a question from Mr. Swanson on cross-examination yesterday. Just tell me if you remember this:

"**Q.** Now, the App Store is a two-sided transaction platform; isn't that right?

"**A.** Yes, it is."

A. Yeah.

Q. Do you recall that?

A. I do recall that.

Q. That was at page 1347 of the transcript.

Do you think that Dr. Evans is the first person to talk about the App Store as a distribution platform?

A. I have no idea. I have not followed the discussion in the wide world about the App Store.

Q. All right. Have you seen evidence in the record that Apple talks about the App Store as a distribution platform?

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A. I don't honestly recall. I might have done.

Q. So you're not aware that even in the -- the very first meeting in which it was decided with Mr. Jobs to restrict distribution on -- on the iOS platform to the App Store, that that's exactly how they phrased it, as "Distribution of Apps. All apps will be distributed through iTunes or App Store on the device. No other distribution method."

Q. You're not familiar with that?

A. If I read it, it made no particular impression.

Q. Okay. And you're not familiar with the white paper, the policy paper, that Apple put together entitled "Application Distribution and Deployment on macOS X Embedded"?

A. "macOS X" being the code name for what became the iOS?

Q. That's right.

A. Okay. I've probably seen it. I don't have a recollection of the language in it.

Q. So distribution is hardly a novel way to talk about the -- the App Store; fair?

A. No. I was just calling -- calling the language for what it was. It's a two-sided platform, and one wants to be clear. But it is also clear that the Apple people treat it like a two-sided transaction platform.

Q. And it's clear that Dr. Evans also treated it like a two-sided platform, as he testified; correct?

A. By and large, yes.

SCHMALENSSEE - CROSS / BORNSTEIN

10:54:50AM Q. Now, you agree that defining the relevant -- in defining the relevant market, the starting point for an economist is the conduct that's at issue; correct?

10:55:03AM A. Well, it's the conduct at issue and also the effects of the conduct at issue.

10:55:09AM Q. And to -- to determine how broad the market should be, you look at who the suppliers are that compete with the alleged monopolist and who impose a constraint on that firm; fair?

10:55:22AM A. Well, you're -- you're making the assumption that all of the -- first of all, that it's an alleged monopolist. It's not always an alleged monopolist.

10:55:36AM
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10:56:26AM But you take a look at the products supplied by the firm or firms that are the focus of the investigation. You do ask about competitive constraints. You might also ask whether it makes sense to treat all of the products as a single entity or whether there are submarkets -- well, I hate the phrase "submarkets," but whether it makes more sense to divide, rather than aggregate.

Q. Right. I appreciate that you want to get there, and I'll give you the chance to.

In this case, the conduct at issue in which Apple has engaged is -- that we're focusing on or here with respect to app distribution, it applies to all apps; correct?

A. That's my understanding, yes.

Q. It's not like it's only games that are prohibited from

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10:56:29AM being downloaded directly onto the iPhone. It's all apps;
10:56:33AM right?

10:56:34AM **A.** That's my understanding, yes.

10:56:37AM **Q.** The reason, though, that you, nevertheless, look at a
10:56:40AM market only for what you call game transactions is because
10:56:45AM that is -- you're looking at the question of antitrust injury;
10:56:52AM is that right?

10:56:53AM **A.** Well, I said that in my deposition. I was being careless.
10:56:56AM One looks at injury to competition, and so one wants to be
10:56:59AM clear about where competition occurs.

10:57:02AM I think it's not a matter of who's the injured party but
10:57:07AM where is competition. And the conclusion, which Dr. Hitt
10:57:13AM defends at great length, Professor Hitt, is that the
10:57:16AM competitive conditions are different between games and
10:57:19AM non-games. Indeed, you can argue there are differences in
10:57:22AM non-games.

10:57:23AM **Q.** So, again, the question, sir --

10:57:24AM **A.** Sorry.

10:57:24AM **Q.** I let you go that time.

10:57:27AM **A.** Sorry.

10:57:28AM **Q.** The question was whether you did -- you came to that
10:57:29AM conclusion because you were thinking about antitrust injury.
10:57:32AM And that's -- that's what you testified at your deposition.

10:57:34AM **A.** I said at my deposition, I was being careless. It was
10:57:38AM competitive -- injury to competition, but I did say "antitrust

10:57:41AM

injury."

10:57:42AM

Q. And you testified to that more than once; correct?

10:57:45AM

A. I was careless more than once, yes.

10:57:48AM

Q. You were careless about three or four times?

10:57:50AM

A. Well, you've probably counted. I haven't, but it's quite possible. I think I also said "injury to competition" a few times.

10:57:53AM

Q. Well, let's focus -- rather than on terminology, let's focus on substance.

10:00:37AM

You did testify --

10:00:43AM

THE WITNESS: Your Honor, may I hit the water again?

10:00:45AM

Thank you.

10:00:46AM

THE COURT REPORTER: I'm sorry. Could we stop for a second?

10:00:46AM

(Court reporter technical problems.)

10:00:46AM

THE COURT: All right. Question.

10:59:45AM

MR. BORNSTEIN: Thank you, Your Honor.

10:59:46AM

Q. So, Professor, if there were a different plaintiff here who was not a company that developed game apps, it is possible, in your view, that you would come to a different conclusion as to the proper market definition; correct?

11:00:04AM

A. Yes, indeed. Given the differences between game apps and non-game apps, if it were a producer of crochet apps, which are available on the iOS platform, I would be inclined to start there and see where one aggregates -- where one

11:00:08AM

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11:00:19AM broadens, rather.

11:00:21AM Q. Again, I let you give a nice answer, but that was a yes-or-no question.

11:00:25AM A. Oh, I'm sorry.

11:00:29AM Q. So if, for example, I take your -- I will take you up on what you said -- a crocheting app was the plaintiff here, you would define the market at least starting with the category, I suppose, of crocheting apps; right?

11:00:40AM A. I would start there. I would probably broaden pretty quickly. Yes.

11:00:46AM Q. And if, for example, the Match Group were the plaintiff, you would start with dating apps; correct?

11:00:54AM A. Again, that's the starting point, not the ending point.

11:00:57AM Q. And if there were a class action of developers, you would start by looking at multiple apps and consider the possibility of multiple markets; is that accurate?

11:01:02AM A. I might. I mean, a class action raises a whole set of issues about class certification and all, so I wouldn't want to go too far down that road, having not done that in a long time. But I would want to look at differences, yeah.

11:01:06AM Q. And if the case were brought, for example, by the Department of Justice, there, too, you would consider the possibility of a market of all apps or of multiple categories of markets; correct?

11:01:26AM A. Yeah, I would, just as when the Department of Justice

11:01:43AM brought the Amex case, they considered a travel and
11:01:48AM entertainment market as a possibility, which the Court did not
11:01:51AM agree with.

11:01:51AM Q. Which the Court rejected.

11:01:53AM A. Right.

11:01:53AM Q. And landed instead on a broader market for all payment
11:01:58AM transactions, correct -- or payment card transactions?

11:02:03AM A. Payment cards excluding debit cards, yes.

11:02:07AM Q. If you had a plaintiff who made both game apps and
11:02:10AM non-game apps, that, too, might lead to a different ultimate
11:02:14AM outcome than where you have landed in this case; correct?

11:02:18AM A. Well, Epic does do both game apps and non-game apps, of
11:02:23AM course, but the question is predominantly game apps. So if it
11:02:27AM were a 50/50 split, for instance, you would look at both hard.

11:02:31AM Q. Sir, is that in your written testimony, that you look at
11:02:33AM the predominant product of the plaintiff?

11:02:38AM A. I think it's implicit if I didn't use the language.

11:02:44AM Q. And if Epic were suing in its capacity as a distributor of
11:02:48AM apps, as a store, well, then the right market would be
11:02:53AM transactions market for all apps, full stop; correct?

11:03:00AM A. You know, I might have said that. It's quite possible.
11:03:03AM I've thought about it. If I may give a complete answer of
11:03:06AM what I think, or wait for redirect?

11:03:08AM Q. Well, let's do it in stages.

11:03:09AM First of all, that was your testimony at your deposition;

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11:03:12AM

correct?

11:03:15AM

A. Could have been, yes.

11:03:16AM

Q. Okay. And since your deposition, you've thought about it and had the opportunity to discuss that with counsel; correct?

11:03:21AM

A. And colleagues and to cogitate, yes.

11:03:23AM

Q. Okay. And you testified also at your deposition that if we were talking about Epic suing in its capacity as a distributor of apps, the relevant market would be, quote, the market for being an app store; is that right?

11:03:39AM

A. Right, a market in which Epic is now active.

11:03:43AM

Q. Right.

11:03:44AM

A. Yeah.

11:03:45AM

Q. A market in which it is currently not permitted to be active; correct?

11:03:49AM

A. It's an app store; it's just not permitted to distribute iOS apps.

11:03:53AM

Q. Or to do so on an iOS device.

11:03:56AM

A. Right. And in a sense, this is -- that exclusion is a special case of the fact that nobody can distribute iOS apps, so it doesn't really get you anyplace different, as I think about it.

11:04:10AM

Q. Anyplace different from --

11:04:11AM

A. If you can't do it, then neither can anybody else.

11:04:14AM

Q. Right. And in any case, you would get to a land where it would be a market for being an app store or for being a

11:04:17AM

11:04:20AM

distributor of all apps.

11:04:21AM

That was your deposition testimony; correct?

11:04:26AM

A. I could have said all apps. I'm not sure that's obvious when Epic is predominantly a -- when the Epic Games Store is predominantly a distributor of iOS apps.

11:04:37AM

But in any case, this is sort of a -- sort of subsumed in the restriction that Epic complains of. It's not a new restriction. Epic can't do it; neither can anybody else.

11:04:46AM

Q. That's right.

11:04:50AM

And as a result, your testimony before and your testimony now is nobody else is able to distribute apps on an iOS device; correct?

11:05:07AM

A. That's my understanding, yes.

11:05:08AM

Q. And if Epic were suing in its capacity as a potential competitor in that activity, distributing apps on an iOS device, the relevant market would be the market for being an app store; correct?

11:05:19AM

A. I think --

11:05:20AM

Q. That was your testimony before.

11:05:22AM

A. Yeah, it probably was. And I think I got -- I'm happy to clarify, but I'm also happy --

11:05:28AM

Q. I think I will let you --

11:05:28AM

A. -- to let you go on and do it on redirect.

11:05:31AM

Q. I think I will let you do that one with Mr. Swanson.

11:05:33AM

A. Of course.

11:05:35AM

Q. What you -- what you land on, ultimately, is a games transaction market; correct?

11:05:42AM

A. Correct.

11:05:43AM

Q. And that's because you believe that game transactions face increased substitution possibilities as compared to certain other types of app transactions; fair?

11:05:47AM

A. Well, that's one reason. There are different sort of broad purposes. There are different specialist providers and so on. But -- it's one reason, but it's not the only reason.

11:05:51AM

Q. And it's a market that includes all games; correct?

11:05:55AM

A. Yes.

11:05:59AM

Q. So -- so -- and you didn't see any basis for narrowing the market any further to some subcategory of game transactions; correct?

11:06:02AM

A. I didn't see a well-defined subcategory of game transactions that -- that merited that treatment, just as the plaintiff's definition doesn't narrow the all app category at all.

11:06:06AM

Q. Right. And so you testified that you saw no basis for any exclusion of a particular type of game category to narrow the market further; correct?

11:06:13AM

A. That's what I said.

11:06:17AM

Q. Okay. But you are aware that there are different types of game apps; correct?

11:06:23AM

A. Of course.

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Q. Some of them are the graphics-heavy, intensive, immersive games like *Fortnite*, which we got to watch here in the courtroom a few times.

A. I missed that. It must have been fun. But I'm aware of that app, yeah.

Q. And some of them are simple kind of finger-swipe apps, and I think you said you played *Tetris*; correct?

A. I did have a brief addiction, yes.

Q. Have you ever played *Fortnite*?

A. I have never played *Fortnite*, no.

Q. And then there are word games and other types of games, as well; correct?

A. Correct.

Q. And there are different substitution possibilities for those different types of games; correct?

A. Well, let me try to answer a sharply -- a more sharply posed question. There are different substitutability relationships. You can always substitute, but consumers may find some closer substitutes than others.

Q. Well --

A. I think that's what you meant.

Q. Well, what I mean is -- I'm using the phrase that you used to describe Professor Lafontaine's analysis, which was "substitution possibilities"; right? Those were your words?

A. That may well have been, yeah.

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11:08:05AM

Q. And a graphics-intensive, immersive game like *Fortnite*, which is available on game consoles and PCs, it has greater substitution possibilities than, you know, a *Candy Crush* or a *Words with Friends*; correct?

11:08:29AM

A. Well, if you mean because it's available on more platforms than those -- I don't know what they're available on -- then, yes, there is more substitution possibility.

11:08:36AM

Q. Okay. And having relied on substitution possibilities to divide the category of all apps into games, you chose not to go further and divide the game apps into categories using the same logic; fair?

11:08:46AM

A. Well, I didn't just rely on that. As I mentioned, there are different developer communities and different monetization strategies. It's -- non-game apps are quite heterogeneous in that regard.

11:09:01AM

Q. And within game apps, you actually didn't investigate the question of whether there are distinct producers or developers of games -- different types of games; right?

11:09:12AM

A. I did not.

11:09:24AM

Q. Right. So at your deposition, for example, you didn't know how many of the developers of the top 25 iOS games also made console games.

11:09:36AM

A. I may well not have known that.

11:09:38AM

Q. And you didn't know the proportion of developers who choose to develop games only for mobile platforms versus for

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11:09:44AM

multiple platforms.

11:09:45AM

A. I didn't have that number. Professor Hitt, I believe, has that number, but I didn't have it on the top of my head.

11:09:53AM

Q. And those were not issues on which you focused in forming your opinion in this case either.

11:09:57AM

A. Well, I read his early report. I read his rebuttal report. I didn't remember the numbers.

11:10:04AM

Q. Okay. Did you, sir, consider the question of -- in forming your opinion, did you consider the question of the proportion of developers who made mobile games only versus who made games for multiple platforms?

11:10:14AM

A. I considered it. I also considered the fact that many developers multihome, to use the other side of the phrase you dropped in the conversation, and so could switch between platforms and could change -- not effortlessly, but could change the menu or the set of platforms for which they produced. So it's possibilities, not just actual behavior, that matters.

11:10:33AM

Q. So, sir, I'd like to ask you to take a look at your deposition, please.

11:10:44AM

Hopefully, I will do better this time, Your Honor. And I'm turning to page 386. This is in Volume 2 of the deposition, Your Honor.

11:10:47AM

THE COURT: Lines?

11:10:58AM

MR. BORNSTEIN: Beginning at line 4 through line 9.

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THE COURT: Okay. You did better.

MR. BORNSTEIN: Thank you, Your Honor.

THE COURT: You can wait for him or you can just read it into the record.

MR. BORNSTEIN: I will wait for Professor Schmalensee.

Q. Do you have it?

A. I have it. Which lines?

Q. I'm on page 386 --

A. Yeah.

Q. -- beginning at line 4.

And I asked you the question:

"**Q.** Did you consider that question in forming your opinion about the proper market definition in this matter?"

Do you see that?

A. I see that. I'm not sure what that question was. I'd have to go back --

Q. I was just going to clarify that. So let's go back up --

A. Yeah.

Q. -- to page 385, line 13, where I asked you the question:

"**Q.** Do you have any understanding of the proportion of developers who choose to develop games for both mobile platforms and consoles versus those who choose to develop games for only one or the other?"

And you answered:

11:12:03AM "A. As I sit here, I don't have those figures off the top
11:12:07AM of my head."

11:12:07AM Correct?

11:12:08AM **A.** Yes.

11:12:09AM **Q.** And that's pretty consistent with what you said just now.

11:12:12AM **A.** That's consistent with my memory, yes. Excuse me.

11:12:15AM **Q.** And then I asked you at the lines that I identified
11:12:17AM before, page 386, line 4:

11:12:19AM "Q. Did you consider that question in forming your
11:12:22AM opinion about the proper market definition in this matter?"

11:12:24AM And after your counsel objected, you said:

11:12:26AM **A.** I didn't consider that specific question in forming
11:12:29AM my opinion."

11:12:31AM Is that the testimony that you gave under oath at
11:12:34AM deposition, sir?

11:12:35AM **A.** It is, indeed.

11:12:36AM **Q.** Okay. You have talked a few times and I've asked you
11:12:45AM questions a couple of times about the Amex case; right?

11:12:49AM **A.** Indeed.

11:12:50AM **Q.** A chestnut that you can look back on like Microsoft
11:12:54AM someday, perhaps.

11:12:56AM **A.** There are differences, but never mind.

11:13:00AM **Q.** And you believe that the App Store here is like the
11:13:06AM American Express network, in that it neither buys nor sells
11:13:12AM any content, but it facilitates transactions involving a wide

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11:13:18AM

range of products; is that fair?

11:13:20AM

A. I may have even used that language, yes.

11:13:23AM

Q. The service that the App Store sells to developers and to consumers is, to use a word in one of your books, matchmaking; correct?

11:13:32AM

A. Great word. Yes.

11:13:35AM

Q. It brings together developers and consumers and it facilitates transactions between them; right?

11:13:41AM

A. Correct.

11:13:42AM

Q. And that -- that transaction service that the App Store provides has nothing whatsoever to do with the content that the developer then provides to the user; is that right?

11:13:56AM

A. Well, the substitutability among transactions does have to do with the content.

11:14:00AM

Q. That wasn't my question.

11:14:03AM

A. Oh, I'm sorry.

11:14:04AM

Q. The question was whether the transaction service that the App Store provides to the developers, whether that has anything to do with the content of the transaction between the developer and the consumer.

11:14:17AM

And if that was too convoluted, I can make that more concrete.

11:14:22AM

A. Oh, I think I know what you mean. And I would say yes

11:14:24AM

except for the fact that the nature of the content may affect whether a commission is owed or what level of commission. But

11:14:28AM

11:14:34AM

that apart, no.

11:14:35AM

Q. Fair enough.

11:14:36AM

But the transaction services that are provided by the App Store are the same services whether the developer sells games or music or coffee or crocheting materials, to take your example; correct?

11:14:44AM

A. Well, crocheting app. But for the issue of a commission and so forth, that's correct.

11:14:50AM

Q. So just like when Amex facilitates payments between merchants and customers, there, the credit card service is the same no matter what the merchant sells; it's a restaurant, it's a hardware store, it's a clothing boutique; right?

11:14:58AM

A. It is the same. The substitution implications may differ, but the transaction service is the same.

11:15:03AM

Q. And that is exactly the situation we find ourselves in with the App Store as well, with the exception you noted that sometimes a commission is due and sometimes it's not; right?

11:15:08AM

A. And with the fact that substitution possibilities among transactions and transaction types may differ here, as there.

11:15:11AM

Q. As there.

11:15:15AM

And as you noted, the court rejected a narrower market in the Amex case; correct?

11:15:18AM

A. It did.

11:15:24AM

Q. We've talked about Steam, the game platform available on PCs.

11:15:27AM

11:15:59AM You remember that?

11:16:01AM A. PCs and Macs and I think Linux.

11:16:05AM Q. And there was some talk about Steam this morning, as well, with your predecessor on the stand, so we are having a steamy day.

11:16:11AM

11:16:13AM **THE COURT:** And I thought my jokes were bad.

11:16:16AM **MR. BORNSTEIN:** You get to laugh because, first, your joke was funny, and, second, you've got the robe, Your Honor.

11:16:22AM **THE COURT:** Exactly. I said that before. I almost talked about the banana today, but decided...

11:16:24AM

11:16:29AM **MR. BORNSTEIN:** I was thinking about the banana today, too. I will keep it out of the exam now.

11:16:34AM **THE WITNESS:** I wish I had seen that. But anyway...

11:16:36AM **THE COURT:** You can see it with and without the tuxedo.

11:16:37AM

11:16:39AM **THE WITNESS:** Yeah, I know. I heard that.

11:16:41AM **MR. BORNSTEIN:** Yeah. Either way, it's PG or G.

11:16:44AM **THE COURT:** I'd say G.

11:16:45AM **BY MR. BORNSTEIN:**

11:16:45AM Q. So Steam, Professor, it charged a 30 percent commission for quite a long time; correct?

11:16:49AM A. That's my understanding, yes.

11:16:52AM Q. And, actually, Apple's counsel gave Steam some credit in her opening statement for setting the 30 percent commission rate about five years before the App Store opened.

11:16:53AM

11:16:57AM

11:17:00AM

SCHMALENSSEE - CROSS / BORNSTEIN

11:17:03AM Did you remember that from the statement?

11:17:05AM **A.** I remember that. I'm not entirely sure that was right, but I remember that. I think that somebody else may have beaten them to it. But in any case, they were early.

11:17:15AM **Q.** And Steam was charging 30 percent for, we'll call it, roughly 15 years; correct?

11:17:20AM **A.** Sounds right.

11:17:21AM **Q.** And then the Epic Games Store came along and started to compete with Steam; correct?

11:17:25AM **A.** Correct.

11:17:26AM **Q.** And Steam reacted, as firms often do, to competition by lowering its commission; correct?

11:17:36AM **A.** Well, you have the -- you have the temporal sequence right. I don't know what was in the head of the people at Steam, but looked at from the outside, that's what it looked like.

11:17:45AM **Q.** And, in fact, their change in the commission rate happened within weeks or a few months of the entry of the Epic Games Store; correct?

11:17:56AM **A.** It is certainly plausible that the entry was causal.

11:17:59AM **Q.** Causal to the change in commission rate.

11:18:02AM **A.** Yes. That's what I meant. Sorry.

11:18:05AM **Q.** But when the Epic Games Store launched and Steam lowered its price, you're not aware of any change to the commission rates on any of the consoles; correct?

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11:18:19AM **A.** I'm unaware of any change. It's my understanding that the consoles are more prone than, say, the App Store to negotiate special deals with individual suppliers, so there may have been a change that's not visible. But the headline rates didn't change.

11:18:38AM **Q.** And the App Store didn't change its pricing when the Epic Games Store entered and Steam reacted by lowering price; correct?

11:18:48AM **A.** Correct.

11:18:48AM **Q.** And Google Play didn't change its pricing at that time either; correct?

11:18:52AM **A.** Correct.

11:18:53AM **Q.** And, in fact, you're unaware of the App Store ever changing its pricing in response to changes in the pricing of gaming transaction platforms; correct?

11:19:04AM **A.** I am unaware of any such change.

11:19:07AM **Q.** Okay. And, in fact, you've never seen any evidence of any cross-platform price changes as a result -- in the gaming transactions market that you've defined; correct?

11:19:23AM **A.** No, unless you want to count the Steam/Epic Games Store, which is -- that's in the store business, but it's -- yeah.

11:19:32AM **Q.** But that's not cross-platform. We're talking in both instances about online marketplaces that are available on PCs and Macs.

11:19:38AM **A.** That's correct, yeah.

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Q. And --
A. Oh, I see what you mean. No. The correct answer is no.
Q. All right. And just so the record is clear, because it seems I asked a potentially unclear question, you're not aware of any evidence of platforms responding to pricing or other term changes made by gaming transaction platforms that are used on other devices; correct?
A. I'm unaware of any such reaction.
Q. Okay. Now, you disputed this morning the notion that there is a market for smartphone operating systems; correct?
A. Correct.
Q. And, in fact, in your -- your testimony, you called Dr. Evans' discussion of the smartphone operating systems an elaborate attempt to distract; correct?
A. I may have gotten carried away, but I did say that.
Q. And your testimony is that there is a market, perhaps, that consists of bundles of hardware devices and operating systems together; is that fair?
A. That's what we buy and sell every day, yeah.
Q. And you have previously acknowledged, however, that there can be a market for operating systems themselves; correct?
A. I haven't in the context of litigation. I certainly have speaking as shorthand probably in Microsoft, probably in Invisible Engines, certainly the same way one talks about a Chevy engine competing with a Ford engine. But software

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11:21:21AM

doesn't compete; organizations compete.

11:21:23AM

Q. So this is another example of your being careless or speaking in shorthand? That's right?

11:21:28AM

A. Well, I assume you have examples where I talked about operating systems competing, and that would be exactly what it was. We probably said that in Invisible Engines.

11:21:34AM

Q. And you probably said that a few other places, too; isn't that right?

11:21:41AM

A. I may well have, yeah.

11:21:43AM

Q. So --

11:21:43AM

A. It's a natural shorthand.

11:21:45AM

Q. And there are, in fact, according to Professor Lafontaine, natural intuitive groupings that are used in defining a market, too.

11:21:56AM

A. That's a rather different issue. It has to do with -- not with terminology but with natural aggregates. But, yes.

11:22:04AM

Q. Okay. And you did refer to the Microsoft case, and in the Microsoft case, one of the issues you analyzed was whether or not the operating system from Windows was being priced at monopoly levels; correct?

11:22:19AM

A. Boy, that's been a long time ago, but, yes, we did.

11:22:22AM

Q. Okay.

11:22:23AM

A. Dr. Evans and I wrote a number of papers on that subject.

11:22:26AM

Q. Right. And after the case, you wrote a number of papers in which you referred to an operating system market; correct?

SCHMALENSSEE - CROSS / BORNSTEIN

- 11:22:32AM A. Might have done.
- 11:22:35AM Q. You said, by the way --
- 11:22:37AM A. I will say -- may I clarify?
- 11:22:39AM Q. Sure.
- 11:22:40AM A. Windows was sold. There was a price. So there was a market. It was an ordinary market. The question is what did it compete with. But if it's a monopoly, then you can look at its price and say is that a monopoly price? That is what we did.
- 11:22:44AM
- 11:22:48AM
- 11:22:52AM
- 11:22:55AM
- 11:22:56AM Q. Right. And it competed with, for example, the Mac computer together with the macOS; correct?
- 11:23:02AM A. Yeah.
- 11:23:03AM Q. And you see those two things as being in competition, a bundled device and OS competing with an operating system all by itself; correct?
- 11:23:06AM
- 11:23:10AM
- 11:23:12AM A. In those -- of course. In those papers -- because Windows is a three-sided platform and it's a little more complicated business -- but in those papers, we didn't -- maybe we did, but I don't think we, in the analysis, looked at a competitor. We looked at is it a monopoly price, given what we know about the demand it faces.
- 11:23:15AM
- 11:23:19AM
- 11:23:22AM
- 11:23:26AM
- 11:23:31AM
- 11:23:33AM Q. Well, maybe you didn't use the word "competitor," but did you write that "few would dispute that Microsoft has a short-run monopoly over PC software platforms even though consumers could opt for Apple computers and the macOS"?
- 11:23:36AM
- 11:23:39AM
- 11:23:44AM

SCHMALENSSEE - CROSS / BORNSTEIN

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11:25:05AM

A. That certainly sounds like something we would have written, Dr. Evans and I.

Q. And you distinguished the Windows operating system just now as not having been free; correct?

A. It was licensed for a price, yes.

Q. And you've testified multiple times that Google gives away the Android system for free; correct?

A. That's my understanding, yes.

Q. But it only gives it away for free from a monetary perspective; correct?

A. Well, if you're saying that Google operates a platform that is profitable and part of that platform is to make the operating system available at a zero price, I agree with that.

Q. Well, it's a zero price in terms of a cash outlay, but there are a number of obligations that OEMs take on when they agree to license the Android operating system; isn't that correct?

A. There are.

Q. For example, they are obligated to give preferential treatment to certain Google services, to Google Play, to certain Google apps, and those are all burdens that they take on as part of the license agreement; correct?

A. But they don't have out-of-pocket costs. There are burdens.

Q. And those burdens are a non-monetary price that are paid

SCHMALENSSEE - CROSS / BORNSTEIN

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by OEMs in order to get access to the Android system, and in that sense, Android is not free, is it?

A. Well, unless I -- unless I misunderstand the nature of those burdens, they are hardly substantial, and they're not how Google monetizes that system in any case. I'm not sure I understand how Google monetizes that system entirely, but that's not it.

Q. But that isn't the issue in terms of how you decide whether there is a market. There is a price that's being paid by those OEMs in order to get Android. It just happens not to be measured in dollars and cents; fair?

A. That's a novel way to look at it, but I think it's probably correct.

Q. You mentioned earlier today that you've been listening attentively to the testimony.

A. I wouldn't go so far as to say "attentively." Some parts are more interesting than others.

Q. Well, I hope you found the cross-examination of Mr. Sweeney interesting.

A. I did.

Q. And you may not have been able to see this or be aware of this because you were not in the courtroom, but did you know that Apple's counsel used a demonstrative with Mr. Sweeney during his cross-examination?

A. I didn't see it. I didn't know what they used. If they

11:26:30AM used it, I'm unaware of it.

11:26:32AM Q. All right. Well, I'm going to pull up on the screen, if

11:26:35AM Mr. Rudd can help me out with slide 2, a version of the

11:26:40AM demonstrative, which I readily concede we put together in an

11:26:44AM effort to faithfully represent what was used with Mr. Sweeney.

11:26:49AM And I readily acknowledge some of the graphics are going to be

11:26:52AM different, but I hope I got the substance of that right.

11:26:55AM Do you have the demonstrative on the screen?

11:26:59AM A. I do.

11:26:59AM Q. Okay. And Apple's counsel went through and had this sort

11:27:03AM of filled out with Mr. Sweeney's help, and what it shows, for

11:27:08AM the record, is five rows, "Xbox," "Sony," "Nintendo,"

11:27:15AM "iPhone," and "Android."

11:27:17AM Do you see that?

11:27:18AM A. I do.

11:27:19AM Q. And then for each one of those, it identifies the headline

11:27:22AM commission rate -- that's a phrase you used earlier today;

11:27:25AM correct?

11:27:26AM A. Yes.

11:27:26AM Q. And it identifies whether or not there is a complete

11:27:29AM prohibition on third-party distribution.

11:27:31AM Do you see that?

11:27:32AM A. I see it.

11:27:33AM Q. And then it indicates whether or not there is a

11:27:35AM requirement to use the platform owner's in-app payment

SCHMALENSSEE - CROSS / BORNSTEIN

11:27:39AM solution.

11:27:39AM Do you see that?

11:27:40AM **A.** I do.

11:27:41AM **MR. BORNSTEIN:** And it occurs to me, Your Honor, we
11:27:42AM should give this a PDX number, which we can do at a break, if
11:27:46AM that's acceptable.

11:27:48AM **THE COURT:** That's fine. I don't know what the next
11:27:50AM in order is.

11:27:51AM **MR. BORNSTEIN:** We'll figure that out.

11:27:53AM **THE COURT:** All right. Proceed.

11:27:53AM **MR. BORNSTEIN:** Thank you.

11:27:56AM **Q.** Now, there are two very important platforms that are
11:27:59AM missing from this demonstrative so far.

11:28:02AM Do you agree with me on that?

11:28:04AM **MR. DOREN:** Your Honor, I will just object to the
11:28:06AM assertion that this accurately reflects what was used with
11:28:10AM Mr. Sweeney. It is a different --

11:28:12AM **THE COURT:** So we can't hear you.

11:28:14AM **THE CLERK:** Hang on. Let me get the mic. Okay.

11:28:20AM **THE COURT:** Go ahead.

11:28:21AM **MR. DOREN:** Your Honor, I apologize for inserting
11:28:23AM myself into this examination, but Mr. Swanson wasn't here for
11:28:27AM Mr. Sweeney's cross-examination.

11:28:28AM And I'll just -- I would like to assert an objection to
11:28:31AM the assertion that this faithfully represents what was used

SCHMALENSSEE - CROSS / BORNSTEIN

11:28:34AM with Mr. Sweeney. There are a number of differences, and I
11:28:38AM just want that clear for the record.

11:28:40AM **THE COURT:** Okay. Well, I don't know them off the
11:28:42AM top of my head. You can give that to -- you can give a copy
11:28:45AM to Mr. Swanson, and if it's important, he will address it.

11:28:48AM **MR. DOREN:** Thank you, Your Honor.

11:28:49AM **THE COURT:** Proceed.

11:28:50AM **MR. BORNSTEIN:** Thank you.

11:28:52AM **Q.** So there are two platforms that are missing from the
11:28:57AM slide, at least as I put it together. I don't want to impugn
11:29:01AM Mr. Doren and his team.

11:29:02AM Is that fair?

11:29:03AM **A.** Yeah. Mac and Windows are missing.

11:29:06AM **Q.** Okay. Well, maybe Mr. Rudd can help us. There we go.

11:29:09AM Now, on Mac and Windows, there's direct distribution
11:29:15AM available, correct, of software?

11:29:18AM **A.** Yes.

11:29:19AM **Q.** There are also stores that are available, and we've talked
11:29:22AM about some today; correct?

11:29:23AM **A.** Yes.

11:29:24AM **Q.** And so fair to say that the commission rate for
11:29:27AM distribution on Windows and Mac varies depending on how the
11:29:30AM developer chooses to get its software out to users.

11:29:37AM **A.** I don't think the commission -- the headline commission
11:29:40AM rate on the store varies. Maybe I don't understand the stores

SCHMALENSSEE - CROSS / BORNSTEIN

11:29:44AM well enough, but the stores have a commission rate. But the developer can use third party or it can use other stores.

11:29:47AM
11:29:50AM Q. Sure. So developers have choices, and as a result, the available range of commission rates to a developer will vary, depending on whether it wants to use an affiliated store, a third-party store, or distribute directly.

11:29:55AM
11:29:58AM
11:30:02AM A. It will presumably vary.

11:30:06AM
11:30:08AM Q. Okay.

11:30:09AM A. Though I would say that -- that direct distribution has its own costs so that labeling it headline commission rate isn't necessarily the right way to go, but there are varying costs depending on the developer's choice.

11:30:13AM
11:30:18AM
11:30:23AM
11:30:26AM Q. That's a fair clarification that I'll take, but since Mr. Rudd can't change the slide on the fly, let's populate it with the words "Varies by Store."

11:30:33AM
11:30:35AM How about that?

11:30:36AM A. Well, that's partly true, but varies by choice of distribution, yeah.

11:30:39AM Q. And I have to probably --

11:30:39AM A. And it does vary by store, as well.

11:30:42AM Q. I think yours is a better description, which I will adopt and the record will reflect.

11:30:46AM
11:30:49AM So let's go to the next one about the complete prohibition on third-party distribution. These, I hope, are easier, because there is no such prohibition on either Windows or Mac;

11:30:56AM

correct?

11:30:57AM

A. Correct.

11:30:57AM

Q. All right. Let's put those in there.

11:30:58AM

And then whether there is a requirement to use the

11:31:01AM

platform owner's in-app payment solution, on neither platform

11:31:07AM

is there such a requirement in all times, again, because the

11:31:11AM

developer can choose how to distribute its app; correct?

11:31:15AM

A. Well, if you use the Windows Store or the Mac Store, there

11:31:18AM

is a complete prohibition. If you do something else, then

11:31:21AM

there must -- there is something else.

11:31:24AM

Q. Correct.

11:31:25AM

A. But for those stores, there is a prohibition.

11:31:27AM

Q. That, too, is a fair clarification.

11:31:29AM

But a developer does have a choice to take another route
and distribute directly; correct?

11:31:32AM

A. Yes, or to use some store that -- as far as I know, the
main stores do have a requirement to use in-app, but direct
distribution obviously lets you do whatever you want.

11:31:44AM

Q. And so, for example, on the Mac, 78 percent of apps are
distributed directly; is that right?

11:31:49AM

A. That could be. It's not a number I have in my head.

11:31:54AM

Q. All right. Well, let's go ahead and populate that. I
predicted we would have gotten to know, but you've clarified
what -- what the facts are and I accept your clarifications.

11:32:01AM

A. Okay.

SCHMALENSSEE - CROSS / BORNSTEIN

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Q. Now, we filled in the bottom of the demonstrative, but I would like to fill in the right side, because there are some other categories that may be relevant to thinking about this. So "Type of OS" is the first column I'd like to add here.

Am I right that you think about computer operating systems as a foundational platform that provide a platform for app developers and users to make all kinds of software?

A. That may even be my language, but, yes.

Q. Okay. And so you would be comfortable calling Windows and Mac, for example, general-purpose operating systems?

A. Yes.

Q. And does that apply for iPhone and Android, too, given the range of apps that are available?

A. Given the range of apps, yes.

Q. Okay. But for Xbox and Sony and PlayStation and the Nintendo Switch, those are different; right?

A. Well, I don't know as a technical matter, but given the hardware/software bundles that are sold, they are not as fully functional as the bundles sold with the others.

It may be that -- you can do a variety of things on Xbox beyond playing games, for instance. I don't know how much that has to do with the hardware or how much that has to do with the software.

Q. But they're not designed and marketed primarily for that purpose, correct, for anything other than games?

SCHMALENSSEE - CROSS / BORNSTEIN

11:33:33AM

A. They are designed and marketed primarily for games, that's correct.

11:33:36AM

Q. And they're not what you would call foundational platforms either; correct?

11:33:39AM

A. I'd have to think about what that means. I'm sure I used the language, but I used the language in connection with the operating systems at the bottom.

11:33:46AM

It's not -- they're not foundational for a wide range of functions, so they're not foundational in that sense. They're foundational for a wide range of games and some of them for a range of functions. So not a technical term.

11:33:50AM

11:33:54AM

Q. Fair enough.

11:34:04AM

As you predicted, those were your words. I was assuming that you would have a clearer definition in mind, but I won't push you on it.

11:34:07AM

11:34:12AM

I will ask Mr. Rudd to populate the slide and see if we can just be in general agreement here that the Xbox, the Sony, PlayStation, and the Nintendo Switch are more special or niche operating systems, and the remainders, the iPhone, the Android, the Windows, and the Mac, are general-purpose or foundational operating systems.

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Would you agree with those characterizations?

A. By and large, although I don't know how -- the extent to which their special nature reflects the operating system or reflects the hardware or reflects the -- some -- some mixture.

SCHMALENSSEE - CROSS / BORNSTEIN

11:34:54AM I just haven't looked. As they are marketed, they're more
11:34:57AM specialized.

11:34:58AM Q. That's a fair clarification, too. Thank you, sir.

11:35:01AM So let's pop in the last column there -- that's the only
11:35:04AM one we have any more room for -- which I have titled "Business
11:35:07AM Model."

11:35:07AM And in the computer operating system business, Microsoft
11:35:15AM provides developer tools for a nominal charge and receives
11:35:21AM almost all of its income for Windows from licensing, from --
11:35:27AM from OEMs, from computer makers; correct?

11:35:31AM A. Correct.

11:35:31AM Q. That's why you called it a three-sided platform?

11:35:33AM A. That's precisely right.

11:35:35AM Q. Mac and iPhone, the two Apple systems here, they get --
11:35:39AM they also provide tools for a nominal charge to developers,
11:35:43AM and they get the bulk of their revenues from the sale of
11:35:47AM hardware; correct?

11:35:49AM A. Correct.

11:35:51AM Q. And Google, you've already said no one really knows how
11:35:54AM they make their money --

11:35:55AM A. Right.

11:35:56AM Q. -- but it seems to be through advertising and information
11:36:01AM gathering that comes from users, ultimately; correct?

11:36:04AM A. It seems to be the general industry understanding, yes.

11:36:07AM Q. Okay. But the video game consoles, you testified this

11:36:12AM

morning the general understanding is that they sell their hardware at a loss; correct?

11:36:19AM

A. Or at least that's not where they make all their money. I did see that Microsoft document that came in which suggests that at least one of them sells at a price that covers incremental cost. But that's not where they make their money.

11:36:31AM

Q. They make their money from the developers; correct?

11:36:37AM

A. Correct.

11:36:37AM

Q. And that is, in fact, in your -- in your opinion, the universal view as to how the video game consoles make their money and run their business; correct?

11:36:41AM

A. Despite the absence of audited financial statements, that has been the general view for a long time.

11:36:54AM

Q. And so let's populate that last column here, where the video consoles have subsidized hardware and the general-purpose operating systems on the bottom profit from the users, from the hardware or, in Google's case, from the advertising or from an OEM; correct?

11:37:04AM

A. Yeah, for the bottom two and the top three, that seems right.

11:37:22AM

Of course, as you will point out, the iPhone gets profit both from the apps, both from developers, and from hardware.

11:37:26AM

Q. Indeed. So let's just divide up these things. We've got the general-purpose operating systems here on the bottom, the bottom four: The iPhone, the Android, the Windows, and the

11:37:31AM

11:37:38AM

11:37:42AM

11:37:46AM Mac.

11:37:46AM And your view, sir, is that the video game consoles on top have a radically different business model; is that fair?

11:37:54AM A. I used that language, yes.

11:37:55AM Q. Well, why don't we finish up the slide. Radically different.

11:37:59AM MR. BORNSTEIN: And I don't know, Your Honor, if now -- oh, we are not even close. I thought we were -- oh, we're an hour off. But I'm happy to keep going.

11:38:07AM THE WITNESS: You must be hungry.

11:38:09AM MR. BORNSTEIN: I am a little bit.

11:38:10AM We can take that down.

11:38:12AM Q. Now, sir, the -- you referred earlier to whether or not there has been actual price changes on the App Store as an opportunity where one might observe substitution going on.

11:38:26AM Do you recall that?

11:38:27AM A. I do.

11:38:27AM Q. Right. And your testimony to the Court has been that Apple has only reduced elements of its price structure over time; is that correct?

11:38:39AM A. That's correct.

11:38:41AM Q. And it's true Apple started with a 30 percent commission back when the App Store was launched; correct?

11:38:47AM A. Yep.

11:38:48AM Q. And that commission, when it applies, has not yet gone

11:38:52AM

higher than 30 percent; correct?

11:38:54AM

A. Nor has it gone lower as a headline commission.

11:38:57AM

Q. But the range of transactions to which that commission applies, that has changed; correct?

11:39:01AM

A. Well, new functionality has been added, like subscriptions, so yes.

11:39:11AM

Q. Well, let's dig in on that, sir.

11:39:15AM

When the App Store was launched in 2008, it was possible for developers to sell content to users from the app, in-app purchasing; correct?

11:39:28AM

A. I'm not sure that was true, but if it was, okay.

11:39:34AM

Q. All right. You don't know one way or the other?

11:39:37AM

A. Well, my understanding is that if it was true, it was subject to the commission. But whether they, in fact, did and didn't pay the commission, I don't know.

11:39:45AM

Q. Well, the IAP mechanism, Apple's in-app purchase mechanism, did not come into being until a year after the App Store was launched; correct?

11:39:57AM

A. That's certainly correct.

11:39:59AM

Q. But prior to the launch of the IAP mechanism of Apple's, it was still possible for people to do in-app purchases, wasn't it?

11:40:06AM

A. I don't know that. It might have been. If it was, I didn't know -- I don't know.

11:40:12AM

Q. All right. And that's fair.

SCHMALENSSEE - CROSS / BORNSTEIN

11:40:14AM Now, I'll just ask you to assume for a moment that I have
11:40:17AM that right.

11:40:17AM **A.** Yep.

11:40:17AM **Q.** In that instance, when Apple introduced IAP, it
11:40:23AM effectively imposed a price increase on those transactions.

11:40:27AM **A.** On those -- on those people who had been doing in-app
11:40:30AM transactions without paying anything.

11:40:32AM **Q.** Yes.

11:40:32AM **A.** If there were such people, they paid a higher price.

11:40:35AM **Q.** And you mentioned subscriptions.

11:40:37AM There were people who were offering subscriptions through
11:40:40AM their apps prior to the time that Apple imposed the IAP
11:40:45AM commission requirement on the subscription sales; correct?

11:40:49AM **A.** My understanding was that the subscription -- the
11:40:53AM subscription change was a new functionality. Again, whether
11:40:58AM they were offering subscriptions before Apple enabled
11:41:04AM subscriptions as such, perhaps. I'm unaware of any examples,
11:41:07AM but if there were such examples, as I said in my deposition,
11:41:10AM then those folks would have seen a price increase. I'm
11:41:14AM unaware that there were such. Apple contends the subscription
11:41:17AM functionality was a new feature for which it charged.

11:41:20AM **Q.** Right. It was a new feature of having subscriptions run
11:41:24AM through the App Store and run through IAP, but certainly you
11:41:27AM realize people were able to have subscriptions available like
11:41:30AM Netflix and Spotify, to take two examples.

SCHMALENSSEE - CROSS / BORNSTEIN

11:41:33AM **A.** Well, as they do now, without needing to run them through
11:41:36AM the App Store.

11:41:38AM **Q.** Right. But before 2011, when Apple actually imposed this
11:41:43AM requirement, they were able to run them from their iOS devices
11:41:46AM as well; correct?

11:41:47AM **A.** I'm unaware of that. My understanding is that that
11:41:49AM functionality really wasn't there. Those would have been
11:41:52AM in-app purchases. They would have -- they would have been
11:41:55AM subject to the commission rate.

11:41:56AM The subscription functionality, well, required Apple to
11:42:03AM track subscriptions, which is different from a "and now you
11:42:07AM buy it and now you buy it and now you buy it." So I'm unaware
11:42:11AM that they were able actually to offer subscriptions before
11:42:14AM this functionality.

11:42:15AM **Q.** And you mean subscriptions through Apple's infrastructure;
11:42:20AM correct?

11:42:21AM **A.** That's what I meant, yes.

11:42:22AM **Q.** Okay. They were able to offer subscriptions, however;
11:42:25AM correct?

11:42:25AM **A.** Well, I don't know how. I mean, you can offer
11:42:27AM subscriptions in the sense that people can subscribe on a
11:42:31AM website or whatever, but whether they were able to offer
11:42:33AM subscriptions in the way we think of a subscription, my
11:42:40AM understanding was that you couldn't quite do that.

11:42:42AM If you could and you didn't pay a commission -- you know,

SCHMALENSSEE - CROSS / BORNSTEIN

11:42:47AM Apple witnesses will have to clarify all of this -- if you
11:42:51AM could do it and didn't pay a commission and then Apple said,
11:42:54AM "If you do it, you pay a commission," by definition, that's a
11:42:58AM price increase. My understanding is the Apple people will say
11:43:00AM that's wrong, but they're not here.

11:43:03AM Q. All right. And I appreciate that, sir. I don't mean to
11:43:06AM debate the facts with you. You're here to talk about the
11:43:09AM economics, and I will try to keep my questions focused that
11:43:12AM way, which is what I have been trying to do.

11:43:14AM You talked a little bit about your analysis of Dr. Evans'
11:43:21AM conclusion that Apple could profitably raise price on its
11:43:26AM commission rate.

11:43:27AM Do you recall that?

11:43:28AM A. I do.

11:43:29AM Q. You currently don't have any view as to whether the price
11:43:33AM that Apple is charging right now is its profit-maximizing
11:43:37AM price.

11:43:38AM Is that accurate?

11:43:39AM A. Sure. I have not done that analysis.

11:43:41AM Q. All right. As a matter of economic principle, is it true
11:43:46AM that determining the profit-maximizing price requires taking
11:43:51AM into account all of the facts and circumstances that face the
11:43:53AM business?

11:43:55AM A. That sounds like a deposition question to which the
11:43:57AM correct answer is yes.

11:44:00AM

Q. I hope it was an economic question, too.

11:44:03AM

A. Yes, sir.

11:44:03AM

Q. Keep to my -- keep to my promise.

11:44:05AM

Now, one of the facts and circumstances that a business

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would rationally take into account in setting a

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profit-maximizing price would be the possibility of regulatory

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action; correct?

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A. If that's a real possibility, that's something that they would take into account.

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Q. And it would be the possibility of legislative action; correct?

11:44:24AM

A. If it's a real possibility, you might take it into account if your pricing would affect that possibility.

11:44:28AM

Q. All right. Well, let's take it from the hypothetical to the actual, albeit historical. Back to Microsoft.

11:44:34AM

You were an expert witness for Microsoft during its antitrust battles; correct?

11:44:41AM

A. I was.

11:44:47AM

Q. And Microsoft went through extensive antitrust scrutiny in the 1990s; correct?

11:44:52AM

A. Oh, yes.

11:44:53AM

Q. And it was widely recognized that the government's focus on Microsoft's conduct led Microsoft to reign in its behavior; correct?

11:45:02AM

A. Recognized -- I must say some of Microsoft's behavior

11:45:15AM didn't suggest a great recognition of that issue, but it was
11:45:19AM certainly discussed.

11:45:20AM Q. All right. And you know that Apple has been under
11:45:23AM antitrust scrutiny here in the United States and around the
11:45:26AM world on App Store-related issues for a number of years;
11:45:30AM correct?

11:45:32AM A. Yeah. I'm not sure how many years, but it's certainly a
11:45:35AM number.

11:45:36AM Q. Well, we heard some testimony this week that Dr. Evans had
11:45:41AM been retained to provide some economic consulting for a client
11:45:46AM on this issue in 2016; right?

11:45:49AM A. We did hear that, yes.

11:45:51AM Q. And you're aware that last year in the summer, Mr. Cook,
11:45:57AM Apple's CEO, testified before Congress; correct?

11:46:00AM A. I think that's right, yeah.

11:46:02AM Q. It was on TV, lots of news about it?

11:46:04AM A. Well, I didn't watch the TV coverage, but that sounds
11:46:08AM right, yeah.

11:46:09AM Q. And Mr. Cook, are you aware, testified that Apple had
11:46:12AM never increased commissions in the store since the first day
11:46:16AM it operated in 2008.

11:46:19AM A. That sounds like what he said.

11:46:22AM Q. And if Apple had actually gone ahead and raised prices,
11:46:26AM Mr. Cook would have lost that talking point, wouldn't he?

11:46:30AM A. He would have. And as I said, I think Apple fact

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11:46:34AM witnesses will dispute the notion of a price increase as
11:46:38AM opposed to a new function for which a price was charged.

11:46:40AM Q. Okay. And if Apple had gone ahead and raised its headline
11:46:43AM rate, its 30 percent, Mr. Cook wouldn't have been able to say
11:46:45AM that to Congress and Apple wouldn't be able to give the
11:46:48AM testimony that it has sponsored in this Court, that it has
11:46:51AM never raised price; correct?

11:46:53AM A. That's certainly correct.

11:46:54AM Q. Now, your report draws a distinction -- you talked about
11:46:58AM it this morning -- between economic profitability and
11:47:01AM accounting profitability; correct?

11:47:03AM A. Correct.

11:47:04AM Q. To be clear, there is no particular bias in which
11:47:10AM direction the difference between those two things goes; right?
11:47:13AM Accounting profits can be higher or lower than economic
11:47:16AM profitability; fair?

11:47:18AM A. That's right. It depends on a lot of things.

11:47:20AM Q. Right. Now, in your expert rebuttal report, you made the
11:47:25AM statement that if most of Apple's R&D is devoted to the App
11:47:31AM Store, then a revenue-based allocation of joint costs would
11:47:38AM underestimate the expenses attributable to the App Store; is
11:47:41AM that correct?

11:47:46AM A. I believe I said it, but could you read it to me again?

11:47:49AM Q. Sure. What you said -- I'll get the exact language,
11:47:54AM rather than a paraphrase -- was that "If most of Apple's R&D

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is devoted to the App Store, then a revenue-based allocation of R&D would underestimate the expenses attributable to the App Store."

A. Yeah. That's sort of like a tautology, isn't it? But, yes, that's what I said.

Q. Okay. And I suppose the converse would be a tautology, as well.

A. Correct.

Q. So if very little of Apple's R&D is devoted to the App Store, then a revenue-based allocation would overestimate the expenses attributable to the App Store; right?

A. Attributable to, yes.

Q. That was what I asked.

A. Whatever that might -- whatever that might have meant to me at the time, yes.

Q. And are you aware that on the very last day of fact discovery in this case, Apple produced to Epic a document that contains actual allocations of R&D expenditures to the App Store?

A. I'm aware of that.

Q. All right. And sure enough, according to that document -- I won't release any numbers and I will be as careful as Mr. Swanson would like me to be here -- according to that document, very little of Apple's R&D was actually allocated to the App Store; correct?

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A. That's my understanding, yes.

Q. Okay. And that was a document that was put together for Mr. Cook and found in his files; correct?

A. It was found in his files. How and who it was prepared for, I don't know, but I'm sure we'll all learn.

Q. I didn't have the opportunity to ask Mr. Cook at his deposition because it hadn't yet been produced, so perhaps we will learn in due course.

If it is true that the revenue-based allocation of joint costs overestimates expenses, then it would understate profits, as a matter of math; correct?

A. Well, as I said, the -- any statement of profit specific to the App Store is arbitrary, so over or under really doesn't have an economic meaning here.

Q. Right, sir, but I'm basing this off of your language from your rebuttal report.

A. I make it a tautology because it's a question of what do you mean by "attributable to." I mean, if, in fact, most of the R&D at the corporate level was for the benefit of the App Store but yet you use a revenue-based allocation, well, then that misses the point of where the R&D was aimed.

But I made the more general point this morning that R&D anywhere in this ecosystem is going to benefit, to a first approximation, all parts. So the allocation is not very meaningful.

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11:50:39AM Q. Right. But it is an allocation that you are aware finance personnel at Apple have actually done in their jobs; correct?

11:50:44AM A. It does seem to have been done by personnel in Apple as part of their jobs.

11:50:49AM Q. And that's, in your experience, not at all uncommon for businesspeople to do allocation of joint costs for various purposes in running the business; correct?

11:50:54AM A. Well, it varies among businesses. I mean, this is managerial accounting, and the question is what's it for.

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A. It's usually for evaluating performance. And allocating joint costs is not real helpful in allocating -- in analyzing performance, but I'm sure we'll all learn why they did it.

Q. My question, however, was it is something that people in the ordinary course, in your experience, do in businesses aside from Apple, just as a general matter, correct, to help run the business?

A. Allocation of joint costs doesn't help you run the business. It is done. Even Mr. Sweeney said that, yes, his accountants sometimes do it, even though he considered those allocations meaningless. So it is done. Accountants love to do that sort of thing.

But if you ask what's it good for, presumably, a business unit head has some control over revenue, has some control over direct costs, doesn't have control over allocated costs. So it's not obvious how useful it is, but it's done. I'll give

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you that.

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Q. After disputing the relevance of accounting profitability in your testimony in writing here, you do acknowledge that persistently high economic profit is suggestive of market power.

11:52:23AM

A. I do, yes.

11:52:23AM

Q. Okay. And you stand by that?

11:52:25AM

A. I do.

11:52:25AM

Q. And you've said something like that now for 40 years; correct?

11:52:29AM

A. Well, I said something like that 40 years ago, and I stand by that, as well.

11:52:34AM

Q. Okay. You remember being cross-examined about that once before, I imagine.

11:52:39AM

A. I've been cross-examined by that a couple -- on that a couple of times. It was in a 1983 Harvard Law Review article.

11:52:47AM

Q. In discussing the profitability analysis from Dr. Evans, one of the things that you did is you argued that successful technology companies, large and small, earn similar and at times higher operating margins than Apple as returns on their intellectual property; correct?

11:53:08AM

A. I did say that, yes.

11:53:09AM

Q. Okay. And you put together an exhibit, Exhibit 2 of your written direct testimony, that was intended to offer information about the operating margins of certain

11:53:13AM

SCHMALENSSEE - CROSS / BORNSTEIN

- 11:53:20AM publicly-traded companies that have online stores; is that
11:53:23AM right?
- 11:53:24AM **A.** Yes. I think I took the list of companies from
11:53:27AM Mr. Barnes' list of people who operated stores. I think
11:53:31AM that's where that list came from.
- 11:53:33AM **MR. BORNSTEIN:** Okay. And why don't we just -- can
11:53:36AM we put Exhibit 2 up. I guess we've marked it DX4861 -- or
11:53:44AM Apple has marked it DX4861.
- 11:53:47AM **Q.** This is your Exhibit 2, sir?
- 11:53:50AM **A.** It looks like it, yes.
- 11:53:52AM **Q.** Great. And what you've done -- first of all, this doesn't
11:53:57AM break out margins that constitute returns on intellectual
11:54:01AM property, which is the way you described it in paragraph 112
11:54:04AM of your report, does it?
- 11:54:05AM **A.** No. There was no way to -- there is no way to do that.
- 11:54:11AM **Q.** And the profit margins reflected here -- in fact, all of
11:54:15AM the financial information reflected here is on a company-wide
11:54:18AM basis; correct? It's not specific to the online stores that
11:54:22AM are run by these entities.
- 11:54:31AM **A.** You're right. That was what was easily publicly
10:57:04AM available.
- 10:57:06AM **Q.** Right. So, for example, just to take the first one,
10:57:09AM Samsung, they run a Galaxy Store, correct, on the Samsung
10:57:13AM phones; correct?
- 10:57:13AM **A.** That's correct.

10:57:13AM

THE COURT REPORTER: I'm sorry, Your Honor, it went

10:57:13AM

out again.

10:57:13AM

(Court reporter technical problems.)

4

THE COURT: Go ahead, Mr. Bornstein.

10:58:22AM

MR. BORNSTEIN: Thank you.

10:58:22AM

Q. So we were on -- we were on Samsung, and the -- I was

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saying that the financial figure -- or asking you the

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financial figures reflected for Samsung here are not limited

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to the Galaxy Store; correct?

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A. That's correct.

10:58:38AM

Q. This covers Samsung's TV business and washing machine

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business and, if you go to Korea, you will discover they have

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a toilet business, too.

10:58:47AM

A. And I believe probably an insurance company, but yeah.

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Q. Indeed.

10:58:51AM

And this says nothing about the profitability of the

10:58:56AM

Galaxy Store; correct?

10:58:58AM

A. That's correct.

10:58:59AM

Q. Or the operating margin of the Galaxy Store; correct?

10:59:02AM

A. That's correct.

10:59:04AM

Q. And, in fact, Exhibit 2 as a whole, to your mind, doesn't

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say anything about whether Apple does or does not have market

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power in any individual line of business; correct?

10:59:19AM

A. That's correct. It just points out that Apple's operating

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margin is not out of line with other operating margins of

SCHMALENSSEE - CROSS / BORNSTEIN

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companies large and small that are in the -- among other things, in the online store business.

10:59:31AM

Q. Okay. Now, Apple --

10:59:33AM

You can take this down, Mr. Rudd.

10:59:36AM

Apple, as we've talked about just a little bit, does not require developers to use the IAP function for the sale of physical goods and services in the real world; correct?

10:59:46AM

A. Indeed, it requires them not to use it. It doesn't -- it lets -- it requires them to use some other solution.

10:59:54AM

Q. Indeed. And that distinction that Apple has chosen to draw you have called part of Apple's monetization strategy for its products and services; correct?

11:00:06AM

A. That's a fancy name, but it's how they choose to price.

11:00:09AM

Q. Right. It's how they have chosen to construct the business --

11:00:12AM

A. Yes.

11:00:13AM

Q. -- correct?

11:00:13AM

And in your view, Apple could make a different choice; yes?

11:00:20AM

A. It could make a different choice. There may be legal constraints that I'm unaware of, but -- but subject to those, it could choose a different strategy.

11:00:30AM

Q. All right. And to be clear, I'm asking you now just about economics.

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A. Thank you.

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Q. The legal job to decide is neither yours nor mine.
So let's put up Slide 13, Mr. Rudd, please, of what will be the end of our examination here.
So for digital in-app purchases, which are the ones subject to the IAP requirement, there is a 30 percent charge -- typically, 30 percent charge that is collected; correct?
A. Unless you are a small developer, that's correct.
Q. And so there is -- there has been some talk, I guess you have heard, about that being a toll booth; correct?
A. I did hear that language, yes.
Q. All right. Well, we've tried to be cute and put together a car going through a toll booth.
So let's put the toll booth up.
Now, it's your view that if Apple wanted to -- again, as an economic matter -- it could also -- for physical in-app purchases, it could put up a toll booth, as well; correct?
A. Just like Amazon and Wal-Mart.
Q. Okay. And in your view, for revenue generated through advertising, Apple could put up a toll booth on that and collect a portion, as well; correct?
A. Assuming it's technically feasible, assuming there is no legal obstacle, it could set a price.
Q. All right. And the same thing is true for transactions that take place on the Safari browser on the iOS. As you

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11:02:00AM

understand it, as an economic matter, Apple could put up a toll booth there, too; correct?

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A. It could. It wouldn't seem to make a lot of sense, but, again, it could try to post that.

11:02:12AM

It couldn't restrict the use of other browsers, which, of course, are available on the -- on iOS, but if it wanted to do that, it presumably could.

11:02:24AM

Q. And when you say "it couldn't restrict the use of other browsers," I assume there you are giving a legal opinion.

11:02:29AM

A. No. I'm reflecting the reality that there are other browsers available. If you're saying could it restrict other browsers and charge for web purchases on Safari, I think that is a legal question.

11:02:42AM

Q. And you're aware for a long time Safari was the only browser on the iPhone; correct?

11:02:46AM

A. I'm not sure that it restricted it to be the only browser, but it was the one that was pre-installed and, as an iPhone user, it's okay. I didn't look around.

11:02:56AM

Q. Okay. Again, you don't know, though, I take it, one way or the other about whether there was a restriction making Safari the only browser at one point in time?

11:03:06AM

A. Well, certainly the only one pre-installed. Whether they barred the installation of other browsers, I'd be surprised, but I don't know for a fact.

11:03:12AM

Q. Okay. And so as an economic matter, the only things that

SCHMALENSSEE - REDIRECT - SWANSON

11:03:18AM are preventing Apple from putting up these toll booths are competition, or the possibility of competition, and people's willingness to pay; fair?

11:03:30AM **A.** I think that's probably right. That's true of anybody's pricing decisions.

11:03:36AM **MR. BORNSTEIN:** I have no further questions for the professor. Thank you.

11:03:43AM **THE COURT:** All right. Redirect.

11:03:44AM **REDIRECT EXAMINATION**

11:03:46AM **BY MR. SWANSON:**

11:03:48AM **Q.** Professor Schmalensee, Mr. Bornstein put before you an article that you had written.

11:03:55AM Were you the sole author of that article?

11:03:58AM **A.** Remind me which article this was.

11:04:00AM **Q.** I had -- well, I don't have the exhibit handy.

11:04:04AM Mr. Bornstein, do you want to help me?

11:04:06AM **THE COURT:** Do you want to stay talking into the mic, please.

11:04:11AM **MR. SWANSON:** Sorry. I was asking Mr. Bornstein to help me. If you have a copy of the exhibit, the title of the article.

11:04:17AM **MR. BORNSTEIN:** It's "An Instant Classic." I was asking Mr. --

11:04:22AM **THE COURT:** We really can't hear you, so if you want that on the record...

11:04:24AM BY MR. SWANSON:

Q. It's -- Mr. Bornstein said the title of the article is, "An instant classic."

A. Oh, sure. I remember that and I remember what he asked me.

Q. Okay. And I just asked, was that an article you authored alone or was that coauthored?

A. Oh, I might have coauthored it with David, but I -- Dr. Evans. I don't recall. I'm happy to take responsibility for that statement, however, if I'm allowed to clarify it.

Q. Well, this is the time. You used the phrase "winner-take-all struggle," I believe, in that article.

What did you mean by that?

A. Well, let me give an example. If somebody -- if people typically eat both Cheerios and Cornflakes, then you're normally competing, as the Cheerios person, for a little more Cheerios and a little less Cornflakes.

If they -- if everybody eats either all Cheerios or all Cornflakes, then you are competing for all of their business, not for all of the market. But for each consumer, it becomes winner take all, either I get all of their business for Cheerios or I lose it all to Cornflakes. And it didn't have to do with the market as a whole; it had to do with individual customers.

Q. And what does that have to do with the intensity of

SCHMALENSSEE - REDIRECT - SWANSON

11:05:40AM competition?

11:05:41AM **A.** Well, both kinds can be intense. Intense -- you can have
11:05:44AM intense competition on the margin for different shares of
11:05:47AM breakfast cereal, if you will, or in general, or you can have
11:05:52AM competition for the whole show: *I want to get them all.*

11:05:54AM You see both kinds in the world, right? People sign
11:05:58AM exclusive deals and you want exclusive deals with you.

11:06:02AM Sometimes you don't have exclusive deals and you're competing
11:06:05AM for a piece of the pie as opposed to the whole pie.

11:06:09AM But it's not taking over the market, which is what was
11:06:12AM sort of implied.

11:06:14AM **Q.** Now, Mr. Bornstein asked you about Apple's rules regarding
11:06:20AM in-app steering.

11:06:24AM Have your opinions about whether or not those rules are
11:06:31AM anticompetitive changed as a result of what -- of the
11:06:34AM interaction you had with Mr. Bornstein?

11:06:36AM **A.** No. He's very persuasive but not that persuasive.

11:06:42AM **Q.** Why not?

11:06:43AM **A.** Well, I mean, Apple posts a commission and Apple says, "We
11:06:49AM want to collect the commission, and we are going to rule out
11:06:52AM ways that you might try to avoid paying us." And they list a
11:06:57AM set of things, which you can consider reasonable or
11:06:59AM unreasonable, that they rule out so as to make it likely they
11:07:02AM will be able to collect their commission.

11:07:04AM And that's exactly the same -- the same thing as Amex. If

SCHMALENSSEE - REDIRECT - SWANSON

11:07:10AM you say you take the card, Amex says okay, you can't say you
11:07:15AM take the card, benefit from having the decal in the window,
11:07:18AM and then try real hard not to take the card.

11:07:20AM Apple says if you're on the App Store and you sign the
11:07:25AM contract and agree to pay the commission, we're going to limit
11:07:30AM the things you can do to avoid paying.

11:07:32AM We could talk about various things that might be done or
11:07:36AM might not be done, but it's the same thrust. You benefit from
11:07:41AM having the decal in the window; you benefit from being on the
11:07:45AM App Store and having access to Apple's intellectual property;
11:07:48AM and in both cases, you're obliged to pay a commission, and
11:07:54AM there are rules that say, no, no, you can't do things to avoid
11:07:57AM paying.

11:07:58AM So I -- I don't see the distinction. As I said, he's very
11:08:03AM persuasive, but he did not change my mind.

11:08:07AM Q. Professor Schmalensee, does Epic's Game Store being
11:08:10AM unavailable on iOS call for a different market definition in
11:08:14AM this case, in your opinion?

11:08:16AM A. No, for the reasons -- for the reasons I suggested.
11:08:19AM They're -- the question is they want to be an app store, they
11:08:24AM are an app store. They are mostly a game app store. So
11:08:30AM they're in that business.

11:08:31AM The complaint is Apple won't let other people distribute
11:08:36AM iOS apps. Well, that's precisely the complaint that they make
11:08:40AM in their role as a potential iOS distributor. It's precisely

SCHMALENSSEE - RECROSS - BORNSTEIN

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the same complaint. So I don't see why it calls for a different market definition.

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MR. SWANSON: Thank you, Professor.

11:08:55AM

No further questions.

11:08:56AM

THE COURT: Anything -- any recross, limited to the scope of redirect?

11:09:00AM

RECROSS-EXAMINATION

11:09:02AM

BY MR. BORNSTEIN:

11:09:03AM

Q. I just hope I can clarify that I didn't intend to mislead you, Professor. Let me direct you to "An Instant Classic" just one more time.

11:09:13AM

A. Okay.

11:09:15AM

Q. And I'll clarify for the record that this was written just by yourself, as reflected on the front page of the exhibit.

11:09:22AM

Do you see that?

11:09:23AM

A. Yeah, that's what I thought. I didn't remember a coauthor, but, hey...

11:09:27AM

Q. You've written so much with Dr. Evans, it's hard to keep track; right?

11:09:30AM

A. No, but I remember this one because -- well, for a variety of reasons. But anyway...

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Q. All right. Let's just turn back to that language we looked at, and I will make this quick.

11:09:40AM

The sentence that I had focused on -- the two sentences I had focused on said, "In the case of smartphone operating

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SCHMALENSSEE - REROSS - BORNSTEIN

11:09:48AM systems, for instance, most consumers singlehome at any one time, while many developers multihome by writing apps for both Android and Apple's iOS."

11:09:52AM That's the first sentence; right?

11:09:57AM **A.** Yes.

11:09:59AM **Q.** And then you say, "Competition for singlehomming customers is a winner-take-all struggle for all of their business, while competition for multihoming customers is competition on a margin for a larger share of their business."

11:10:01AM **A.** It's as true here as it is true for breakfast cereals. So it's the same argument.

11:10:04AM **Q.** Great. And I was not intending to suggest that it was a winner-take-all struggle for the full market. It's, in fact, as you say, for all of their business --

11:10:08AM **A.** Right.

11:10:12AM **Q.** -- correct?

11:10:14AM **A.** Yes.

11:10:19AM **Q.** And that means for all of the business of a particular singlehomming customer; correct?

11:10:23AM **A.** Precisely.

11:10:25AM **Q.** And that is in part because those people have trouble switching from one side to the other and will stay and singlehome with one operating system; correct?

11:10:27AM **A.** No. It doesn't have to do with why they singlehome. It just has to do with the fact that they singlehome. Switching

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11:10:52AM

could be effortless.

11:10:54AM

I -- I have some anecdotal experience on that, and let me just say it has nothing to do with the difficulty of switching. If they decide that I am -- if I decide that today I'm only going to use one of these two systems, then your competition is to get me to change. If I -- if I use them both, then it's for a share of my business. It doesn't have to do with switching costs.

11:11:00AM

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11:11:19AM

Q. And in this market, it is your view that people don't use

both at the same time; fair?

11:11:22AM

A. That's certainly true, they don't use both at the same time.

11:11:30AM

MR. BORNSTEIN: All right. Nothing further,
Your Honor.

11:11:33AM

THE COURT: Anything on the "Instant Classic"?

11:11:35AM

MR. SWANSON: No, Your Honor.

11:11:40AM

THE COURT: Okay. Well, I have a question.

11:11:41AM

THE WITNESS: Yes, ma'am.

11:11:43AM

THE COURT: Or maybe a couple.

11:11:46AM

THE WITNESS: Of course.

11:11:47AM

THE COURT: So I have the ABA's antitrust law book up here, and I've heard quite a bit of evidence throughout the trial regarding how big Apple is, right, and how anticompetitive it is.

11:11:52AM

11:11:57AM

11:12:05AM

I put in my preliminary injunction order a note with

11:12:08AM

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11:12:13AM respect to essential facilities. Neither of the parties have
11:12:18AM any interest in briefing or providing evidence on that topic,
11:12:25AM but it says that "An essential facilities claim arises in a
11:12:34AM vertical context" -- which is what we're dealing with; right?

11:12:38AM **THE WITNESS:** Right, like Aspen Ski, yes.

11:12:40AM **THE COURT:** -- "and a plaintiff alleges that a
11:12:42AM monopolist has a duty to deal because its own facility or
11:12:46AM input is so superior to anything else available that
11:12:50AM competitors cannot succeed without accessing it."

11:12:55AM **THE WITNESS:** Right.

11:12:56AM **THE COURT:** So it sounds to me like what Epic is
11:13:00AM saying is that we want Apple to allow us to deal on their
11:13:05AM platform, their iOS, and there are only two of these
11:13:09AM platforms, and, therefore, because there are only two
11:13:14AM competitors, all of these competitors can't succeed without
11:13:18AM access to these platforms, this one and Google.

11:13:23AM To someone who has not practiced antitrust law for 40-plus
11:13:27AM years, it seems to me that this is -- that this is something
11:13:34AM which is in this doctrine, but apparently neither of the sides
11:13:38AM are interested in that.

11:13:39AM So why isn't it in that doctrine?

11:13:43AM **THE WITNESS:** Well, to someone who has never
11:13:44AM practiced antitrust law, I can -- I can -- I can give it a
11:13:48AM shot.

11:13:48AM I mean, if you -- if you go back to the -- I guess the

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11:13:54AM Terminal Railroad case way back, I think -- where I think this
11:13:57AM doctrine had its origin -- I grew up near St. Louis, and there
11:14:01AM was only one bridge across the river, and if you wanted, as a
11:14:05AM railroad, to go west, you had to have that bridge. There was
11:14:09AM just no alternative.

11:14:10AM And the Terminal Railroad Association was a group of
11:14:14AM railroads -- it either owned the terminal or they owned the
11:14:17AM bridge -- and they could block east/west access.

11:14:20AM And the court said you have to have that. It is --

11:14:25AM **THE COURT:** But here --

11:14:25AM **THE WITNESS:** -- of the -- it is of the nature of a
11:14:27AM public utility. You can't have competition without it.

11:14:30AM **THE COURT:** Here the argument is that everybody has a
11:14:32AM communications device, that being a smartphone, and the only
11:14:37AM way to access those billions of customers is through Android
11:14:41AM or the iPhone.

11:14:43AM **THE WITNESS:** Well, but the essential facility
11:14:45AM doctrine -- an essential facility claim seems to me to arise
11:14:50AM here -- and this is sort of conversation over coffee with
11:14:53AM other economists and lawyers, and take it for what it's worth,
11:14:56AM it's -- it arises in Apple's claim that it's blocked competing
11:15:04AM with the App Store. It's blocked being a store.

11:15:07AM And so for that to work, it seems to me it has to be able
11:15:11AM to argue we can't be a viable store unless we can access those
11:15:17AM products. This is like Aspen Ski, right? We can't be a

SCHMALENSSEE - REROSS - BORNSTEIN

11:15:21AM viable ski mountain unless we can have a joint pass with you.

11:15:26AM But, of course, they are a store and Steam is a store and

11:15:32AM there are lots of stores. So I think the reason Epic is --

11:15:40AM far be it from me to sit here as a poor economist and try to

11:15:44AM judge why they have decided what to plead, but I think the

11:15:48AM argument that we can't be in the store business without access

11:15:52AM to iOS apps just fails. I mean, they're in the store

11:15:55AM business. Other people are in the store business.

11:15:57AM Can they not distribute apps and access consumers? Well,

11:16:05AM if they want to access iOS, they have to go through the store.

11:16:08AM But they do, and they make a lot of money going through the

11:16:11AM store.

11:16:11AM So it's not essential -- you know, it could be -- let me

11:16:17AM take another shot -- it could be that Apple nominally gives

11:16:22AM them access but the terms are so unfavorable that as a

11:16:26AM business matter, they can't function. But they've made a lot

11:16:30AM of money going through that store, so I think they have

11:16:33AM trouble making the argument.

11:16:35AM Apple hasn't briefed it because they haven't had to. Epic

11:16:39AM hasn't briefed it, I think, right -- take an economist's

11:16:43AM advice on this? I'm not sure -- but Epic hasn't briefed it

11:16:47AM because I don't think there is a case there. But you asked.

11:16:49AM **THE COURT:** I did ask, and that's my prerogative.

11:16:55AM So, again, I know that neither of you are pursuing that

11:17:01AM theory, but if you want, Mr. Bornstein, you're welcome to

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11:17:04AM follow up.

11:17:08AM **MR. BORNSTEIN:** I don't have any questions for
11:17:10AM Professor Schmalensee on that. I would just want to make
11:17:13AM clear for the Court that we have not abandoned that theory.
11:17:15AM It's in our conclusions of law, and we --

11:17:19AM **THE COURT:** I thought I had read that you did abandon
11:17:21AM it, but okay.

11:17:22AM **MR. BORNSTEIN:** I think you read Apple's
11:17:24AM characterization of our brief, Your Honor.

11:17:25AM **THE COURT:** Okay.

11:17:26AM Mr. Swanson, anything?

11:17:29AM **MR. SWANSON:** No. No, Your Honor. Thank you.

11:17:31AM **THE COURT:** All right. Well, thank you very much,
11:17:32AM sir. You are excused.

11:17:36AM **THE WITNESS:** Thank you, Your Honor.

11:17:37AM **THE COURT:** Next witness.

11:17:54AM **MS. DUNN:** Your Honor, Apple calls Dr. Francine
11:17:56AM Lafontaine.

11:17:59AM **FRANCINE LAFONTAINE,**
11:18:29AM called as a witness for the Defendant, having been duly sworn,
11:18:29AM testified as follows:

11:18:30AM **THE CLERK:** Please be seated. And then would you
11:18:34AM please state your full name and spell your last name, and then
11:18:38AM you're going to have to work that microphone so it's kind of
11:18:41AM below the shield there. Okay.

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11:18:44AM

THE WITNESS: Francine Lafontaine, L-A-F-, as in

11:18:49AM

Frank, O-N-T, as in Tom, A-I-N-E.

11:18:54AM

THE COURT: Okay. Good afternoon.

11:18:56AM

THE WITNESS: Good afternoon.

11:18:56AM

THE COURT: You may proceed, Ms. Dunn.

11:18:57AM

MS. DUNN: Thank you, Your Honor.

11:18:58AM

DIRECT EXAMINATION

11:18:59AM

BY MS. DUNN:

11:19:00AM

Q. Dr. Lafontaine, where do you currently work?

11:19:02AM

A. I work at the University of Michigan, the business school.

11:19:06AM

Q. And what's your position at the business school there?

11:19:09AM

A. So I'm the William Davidson professor of business

11:19:13AM

economics, as well as the associate dean for business +

11:19:16AM

impact, and in less than two weeks I will be the interim dean

11:19:22AM

of the business school.

11:19:24AM

Q. Congratulations on your new position.

11:19:26AM

Have you prepared slides for use in connection with your testimony today?

11:19:30AM

A. Yes, I have.

11:19:31AM

Q. Okay. And if you -- hopefully, you have a binder up

11:19:35AM

there.

11:19:36AM

A. Yes.

11:19:41AM

MS. DUNN: Your Honor, may I pass up the binders?

11:19:44AM

THE WITNESS: Yeah. This isn't mine.

11:19:54AM

Thank you. Thank you.

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BY MS. DUNN:

Q. So you should have one binder with exhibits and one binder that contains your report and other materials, and at the front of that binder should be the slides that you prepared.

Do you see those?

A. I'm not quite there yet. I -- I'm sorry -- oh, got it.

Q. Great. They are also on the screen if that's helpful.

A. Yes, that is helpful.

MS. DUNN: And let's have the next slide.

Q. All right. Dr. Lafontaine, please explain to the Court your background -- educational background and professional background.

A. So I have an undergraduate degree in business from the University of Montreal in Canada, as well as a master's degree from there, and a Ph.D. in economics from the University of British Columbia in Vancouver, Canada.

Q. And how about your work experience?

A. So I have been at the University of Michigan now since 1991, so that has been a long time. I spent a few years before that at Carnegie Mellon University as a faculty member.

I also have -- was the director of the Bureau of Economics at the Federal Trade Commission in 2014 and '15, and I have served different roles in -- so I was the president of the IO Society and things along those lines.

Q. And as director of the FTC's Bureau of Economics, what

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11:21:48AM were your responsibilities?

11:21:49AM **A.** So my responsibilities was to work with the staff at
11:21:53AM the -- in the Bureau of Economics and oversee the different
11:21:58AM set of matters that they were working on as -- as they would
11:22:02AM bring me information about the different matters, as I said,
11:22:06AM and we would discuss and -- their analysis and I would support
11:22:10AM and ask questions and they would let me know where things --
11:22:15AM what they were finding, and I would also convey their
11:22:20AM conclusions to the commissioners and as well as my own opinion
11:22:25AM of the same.

11:22:26AM **Q.** And what specifically is your area of professional
11:22:29AM expertise?

11:22:30AM **A.** So my field within economics is industrial organization.

11:22:37AM **Q.** Please describe for the Court just a few of your
11:22:39AM publications in that field.

11:22:41AM **A.** So I've published a book entitled "The Economics of
11:22:44AM Franchising." I have also written a number of articles on
11:22:50AM vertical contracts, distribution, franchising, as well as
11:22:57AM retail and the public policy issues that come with that and
11:23:03AM the entrepreneurship component of that.

11:23:08AM **Q.** And in your binder, there is Defense Exhibit 5546, which
11:23:11AM I'll just ask you to identify as your CV.

11:23:26AM **A.** Yes. Thank you.

11:23:29AM **MS. DUNN:** Your Honor, we move 5546.

11:23:32AM **THE COURT:** No objection?

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MR. BORNSTEIN: None, Your Honor.

THE COURT: It's admitted.

(Defense Exhibit 5546 received in evidence)

BY MS. DUNN:

Q. Dr. Lafontaine, I know that you have prepared written direct testimony in this case on the topics of market definition and market power. In the interest of time today, we're going to focus on market definition.

At a high level, when you are asked to define a product market, where do you start?

A. So I start with the product at issue and think about what are possible substitutes from the perspective of consumers.

Q. And what do you mean by "substitutes"?

And, actually, I will ask Mr. Spalding if you could put up Slide 3.

THE WITNESS: So the issue with substitutes is whether products satisfy the same consumer need. So you would look for different suppliers, different sellers of a similar product that consumers could substitute if ever the terms at which the product at issue would deteriorate. So price increase, quality decrease, things like that.

BY MS. DUNN:

Q. And from whose perspective should substitution be examined?

A. So substitution is about consumer welfare, so it should be

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11:24:47AM from the perspective of the customers of the product.

11:24:50AM And in this case, because the App Store is a transaction platform, the customers are both consumers and developers.

11:25:00AM And so that's the set of people that -- or entities that you would be looking at.

11:25:11AM **MS. DUNN:** Your Honor, I just received a note. I forgot to ask the Court to qualify Dr. Lafontaine as an expert, so we would ask for that.

11:25:19AM **MR. BORNSTEIN:** No objection, Your Honor.

11:25:21AM **THE COURT:** She's admitted.

11:25:22AM **MS. DUNN:** Thank you.

11:25:25AM **THE COURT:** It's not technically required, but she is admitted.

11:25:29AM **MS. DUNN:** I appreciate that.

11:25:31AM **Q.** Dr. Lafontaine, what, if any, role does the defendant's conduct play in assessing market definition?

11:25:40AM **A.** So the conduct typically would be the reason why some matter comes up; that is, there's a dispute of some sort. So the conduct would be part of that.

11:25:50AM But the definition of a market has to begin with the product around which we look for substitutes.

11:25:57AM **Q.** Okay. And why would you not look at the alleged conduct to figure out what products are good substitutes?

11:26:02AM **A.** Well, because conduct is not a product and therefore consumers don't consume the conduct. So what we need to look

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11:26:14AM

at is what is the product that's affected by the conduct and then think about what are the substitutes that consumers can turn to.

11:26:23AM

Q. Okay. And is there -- do you have an example that you could offer that would help us understand this?

11:26:28AM

A. So, for example, while I was at -- well, so an example would be something around a pair of shoes and needing different types, so high heels versus flat shoes are the substitutes for one another and what consumer need is being satisfied is the question.

11:26:56AM

Q. And can there be more than one market?

11:27:00AM

A. Yes. So conduct can affect more than one market. So an example of that would be a merger case that I was involved with while I was at the Federal Trade Commission where it was generic drug manufacturers producing different types of drugs that were merging.

11:27:18AM

And so the question for the -- for the case was really to look at all of the different kinds of molecules and products that these firms were producing and examine, within each one, how many competitors there were and whether the merger would present a problem in each of them. So they were looked at separately, these different markets.

11:27:44AM

Q. And your report addresses Dr. Evans' proposed market definition in this case?

11:27:52AM

A. Yes, it does.

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11:27:53AM Q. And at a very high level, what did you conclude about Dr. Evans' proposed market definition?

11:27:58AM A. That it is both too broad and too narrow.

11:28:03AM Q. Okay. And at a very high level, can you explain what you mean?

11:28:06AM A. Yes. So it is too broad because it does include all types of apps, and these are not all substitutes for one another, as he's mentioned himself.

11:28:14AM And it is too narrow because it focuses on only one place where consumers can go and where developers can go, and that's 11:28:17AM the iOS App Store.

11:28:26AM **MS. DUNN:** Mr. Spalding, if we could switch to the 11:28:29AM next slide.

11:28:30AM Q. Dr. Lafontaine, you prepared this slide to address your 11:28:32AM conclusion that the proposed market is too broad.

11:28:36AM Can you explain the first -- the first point you have on 11:28:41AM this slide.

11:28:44AM A. Right. So as I said, in market definition, we start with 11:28:47AM a product, and then we ask what are good substitutes for it.

11:28:51AM iOS app transactions that involve different kinds of 11:28:57AM apps don't meet the same consumer need, and, therefore, 11:29:00AM they're not good substitutes for each other. If I'm looking 11:29:03AM to download a game, I'm not likely to substitute to a cooking 11:29:09AM app, even though I enjoy cooking, or a spreadsheet.

11:29:14AM Q. And why do you say "good substitutes"? What do you mean

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11:29:16AM by that?

11:29:17AM **A.** Well, you wouldn't want to include in the market something
11:29:19AM that the consumer wouldn't consider at all, things that are
11:29:23AM too far apart, but you also don't want to ask for substitutes
11:29:27AM to be perfect. That doesn't exist in most differentiated
11:29:32AM markets. Substitutes are, you know, not exactly what you
11:29:35AM might have chosen, but given the change in price or
11:29:38AM circumstances on the product that you might have chosen, you
11:29:41AM may decide to switch to this instead.

11:29:43AM **Q.** Okay. Let's move to your second point, which talks about
11:29:48AM clustering.

11:29:49AM Can you explain to the Court the second point.

11:29:52AM **A.** So, again, in -- in creating a market definition -- a
11:29:56AM product market definition, we're looking for substitutes. If
11:30:01AM products are not substitutes for one another, then one of the
11:30:04AM ways that we can put them in the same market is to create a
11:30:08AM cluster market. So we cluster all products together if they
11:30:14AM have the same market conditions fundamentally.

11:30:18AM So if the market conditions are going to be exactly the
11:30:21AM same across different products that don't substitute -- that
11:30:25AM are not substitutes for each other, then whether we do the
11:30:29AM analysis separately for each one of them, we would get the
11:30:33AM same answer many times. So for analytical purposes and to
11:30:37AM keep things a little bit more manageable, we put them together
11:30:40AM in a cluster market.

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11:30:41AM Q. Okay. And I know you've prepared a couple examples to help talk about clustering.

11:30:44AM So if we could go to Slide 5.

11:30:48AM What are we seeing here?

11:30:51AM A. So this is, again, a case that I was involved with when I was at the FTC. Staples and Office Depot proposed to merge for the second time. They have now proposed a third time.

11:30:55AM And at the time -- the other two have been dropped, obviously.

11:31:00AM At the time, the FTC looked at this particular merger and was concerned about business customers in particular. So they found that business customers went to Staples and Office Depot in a major way to buy all sorts of different kinds of office supplies, so pen, paper pads, all sorts of things like that. Obviously, these are not products that are substitutes for one another, but they were products that were offered by the same set of options in the market. So Staples and Office Depot were very -- were big players in that, and there were just a few others, and they were the same for all these customers.

11:31:05AM 11:31:13AM 11:31:18AM 11:31:24AM 11:31:31AM 11:31:34AM 11:31:36AM 11:31:41AM 11:31:46AM 11:31:50AM 11:31:53AM 11:31:59AM 11:32:03AM So the FTC proposed, and the court accepted, a cluster market that consisted of all of the office supplies in question.

11:32:04AM 11:32:08AM 11:32:13AM 11:32:17AM At the same time, Staples and Office Depot also sold ink and toner. Ink and toner, though, business customers would go and get that from other suppliers, as well as from Office Depot and Staples. So in particular, they would go and buy

11:32:21AM that from printer and copier manufacturers, so there was a set
11:32:26AM of options that was available for ink and toner that was not
11:32:30AM available for Staples and Office Depot.

11:32:32AM And as a result of that, the FTC and the court -- the FTC
11:32:38AM proposed a market that did not include ink and toner, and the
11:32:42AM court accepted that market because the market conditions were
11:32:45AM different for that subset of products.

11:32:48AM Q. And how would you apply this example to this case?

11:32:54AM A. Well, we have a similar situation here in the sense that
11:32:58AM for different kinds of apps, there are different opportunities
11:33:01AM to transact.

11:33:02AM So for game apps in particular, there are consoles, there
11:33:08AM are stores that specialize in games, in addition to general
11:33:12AM app stores, that make these transactions possible.

11:33:16AM For other kinds of apps, there's a different set of
11:33:20AM options that may be available, but it -- they don't have
11:33:24AM exactly the same competitive -- well, they don't have the same
11:33:29AM competitive conditions between games and non-games. And as a
11:33:32AM result of that, clustering is not a -- is not something you
11:33:37AM could do here.

11:33:39AM **THE COURT:** In this example, what was the market
11:33:41AM definition suggested by Staples and Office Depot?

11:33:44AM **THE WITNESS:** They wanted the ink and toner to be
11:33:47AM included because that would have made it so that they had a
11:33:49AM smaller share, because they had a smaller share given these

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11:33:53AM other sellers.

11:33:55AM **THE COURT:** I see. So they -- they were the ones
11:33:57AM that suggested the ink and toner?

11:33:59AM **THE WITNESS:** Yes.

11:34:00AM **THE COURT:** Okay.

11:34:02AM **MS. DUNN:** Your Honor, I have one more question on
11:34:04AM this example, but I also note the time.

11:34:08AM **THE COURT:** We have four minutes.

11:34:09AM **MS. DUNN:** Okay. Thank you.

11:34:11AM **Q.** Dr. Lafontaine, in this case, if a customer of ink and
11:34:15AM toner had brought the lawsuit, as opposed to the FTC, would
11:34:19AM that have required including ink and toner in the market,
11:34:23AM along with the other office supplies?

11:34:26AM **A.** No. So what would have happened then is that the case
11:34:28AM would have been focused on the options that are available for
11:34:32AM ink and toner customers, and that would mean both the printer
11:34:37AM and copier sources, as well as Office Depot and Staples. So
11:34:41AM the market would have been defined around that market.

11:34:45AM **Q.** If we could go to the next slide, Slide 6.

11:34:50AM So your next slide represents a hypothetical that you
11:34:54AM talked about in your report.

11:34:55AM Can you please explain to the Court what we're seeing on
11:34:58AM this slide.

11:34:59AM **A.** Yes. So this would be a hypothetical where we have a
11:35:03AM supermarket that sells a variety of different kinds of

11:35:06AM

products, and it decides to impose a restriction on some of their suppliers, some kind of exclusivity rule, for example, or something like that.

11:35:10AM

And a wine distributor decides to challenge that. Given that the wine distributor would be the challenger in a case like that, what would happen is that one could -- one would have to, in thinking about what the right market definition would be, think about not only -- well, think about the different places where customers do go and buy wine and also where distributors can make their wines available.

11:35:15AM

And so it wouldn't be limited to supermarkets, since in most markets and most local markets, there would be some liquor stores that also sell wine and other -- so there might be other supermarkets that do -- that are definitely liquor stores, so the market would be defined to include all of these options since these are all ways in which consumers can get access to the product.

11:35:20AM

Q. Okay. And you said earlier that focusing on conduct is not the way you define a product market.

11:35:25AM

Can you apply that to this example?

11:35:30AM

A. Yes. So the supermarket might have made this restriction quite general across a number of different product categories, but what matters in terms of the specific case that we're -- that we would be talking about, which comes from the wine distributor, is what is available to the wine distributor and

11:35:35AM

11:36:38AM their customers.

11:36:39AM So other products that are sold in the supermarket, even
11:36:43AM if that constraint is imposed on that, that is not a relevant
11:36:49AM part of the market.

11:36:50AM Q. Okay. And so if a different kind of distributor, like a
11:36:53AM flower distributor, brought the same case as the wine
11:36:56AM distributor, what happens then?

11:36:58AM A. Well, if it's a flower distributor, the question is going
11:37:00AM to be where else do flowers get sold. And so you might have
11:37:05AM flower shops in that market. You probably would have other
11:37:09AM supermarkets. So you would have to look in that local
11:37:13AM vicinity what are the options for the flower shop -- for the
11:37:17AM flower distributor.

11:37:18AM Q. Okay. And just to take this analogy one step -- and only
11:37:22AM one more step -- further, what happens to the market
11:37:26AM definition analysis for the wine if the liquor stores that
11:37:32AM you've spoken about sell not only wine but some other items,
11:37:35AM like crackers?

11:37:37AM A. Well, the liquor stores are still -- the crackers and
11:37:41AM these other things are not the things that bring people to the
11:37:45AM store. That's not what the store is recognized as being
11:37:50AM involved in. It's mostly the wine and the liquor that brings
11:37:53AM customers, because these are stores that portray themselves as
11:37:57AM selling that.

11:37:57AM And so as a consumer, I would go to those stores for wine

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11:38:01AM and liquor and not for the crackers specifically typically, and so it doesn't really affect the market definition.

11:38:10AM Q. And what, if anything, does that have to do with substitution?

11:38:14AM A. Well, it's still the case that as a consumer, my options are to go across -- to go across the street to the liquor store, to the other supermarket. All these options are substitutes, from my perspective.

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And as a distributor, the same thing; fundamentally, all these options are substitutes. So I would include all these options in the market. It doesn't really change anything that there are crackers or other things in the store -- in the liquor store.

THE COURT: Is this a good breaking point?

All right. We will stand in recess for our second break. I will have you back on the stand at 1:15.

THE WITNESS: All right. Thank you.

THE COURT: We'll stand in recess. Thank you.

(Luncheon recess was taken at 12:38 p.m.)

(Resumed at 1:15 p.m.)

THE COURT: We are back on the record. The record will reflect I have both parties back. Professor is on the stand.

You may proceed.

MS. DUNN: Thank you, Your Honor.

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1:15:45PM

BY MS. DUNN:

1:15:46PM

Q. Professor Lafontaine, just to remind you where we were, you had just testified that if crackers were available and offered at the wine store, it would not change substitution patterns. So that's a paraphrase, not to replace your actual testimony. I want to ask you a similar question concerning the Epic Games Store.

1:16:13PM

Does the recent edition of Spotify or other nongame apps over the past few weeks to the Epic Games Store change your analysis?

1:16:23PM

A. No.

1:16:23PM

THE WITNESS: Sorry, I haven't figured out where this was. Can you hear me okay?

1:16:28PM

THE REPORTER: Yes.

1:16:28PM

THE WITNESS: All right.

1:16:28PM

So it wouldn't change my analysis because, fundamentally, it's still the case that consumers would have the option of going to the Epic Games Store to buy games, that they can have options to go elsewhere to transact in game -- to engage in game transactions.

1:16:47PM

And the Epic Games Store is still mostly, from the consumer's perspective, just like the liquor store, a place that they would think of to go for games, given what it has been.

1:17:03PM

Q. And did you -- in reviewing Dr. Evans' report, did you

1:17:12PM also listen to his testimony?

1:17:14PM **A.** Most of it, yes. I had to excuse myself for a couple of meetings, but, yes, most.

1:17:21PM **Q.** Okay. And did Dr. Evans find a cluster market in this case?

1:17:24PM **A.** No. He did not look for one.

1:17:27PM **Q.** Okay. In a situation where a cluster market has not been defined, can you define a market around a store with many products simply by labeling the market distribution?

1:17:40PM **A.** No. So you would still need to think about what are the competitive opportunities -- what are the things that consumers can substitute to. So depending on the kinds of products that are within the store, you would look at different sets of them, just like the FTC did for the pharmaceutical generic drug analysis. They looked at the different drugs and looked at whether there was competition in each of these markets.

1:17:53PM **Q.** And what value, if any, does a SSNIP test have for a proposed market of a large group of products that does not meet the standard for a cluster market?

1:17:59PM **A.** Well, it's confusing to run such a test because you are really mixing products that don't compete with one another, that are not substitute for each other. So I think you would mostly get noise out of performing such a test.

1:18:04PM **Q.** Okay. Now, you also said earlier that part of your

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1:18:46PM opinion is that Dr. Evans' iOS app distribution market is too narrow.

1:18:51PM And I know that you covered that in your written direct testimony; is that right?

1:18:57PM **A.** Yes, I do.

1:18:57PM **Q.** Okay. And --

1:19:03PM **A.** Do you want me to expand on that a little bit?

1:19:06PM **Q.** I think -- in the interest of time today, I think if you could expand on it at a high level --

1:19:10PM **A.** Yeah.

1:19:10PM **Q.** -- that would be very helpful.

1:19:12PM **A.** So, basically, it is too narrow because it focuses on the one platform, and consumers have options to go and transact on other platforms.

1:19:15PM **Q.** And what are you relying on for your conclusions?

1:19:26PM **A.** So in terms of this particular aspect, there are statements by Mr. Sweeney that he gave in deposition, as well as a document from Microsoft, that talks about other platforms competing with their own. And so documents along those lines, as well as the reports of my colleagues, Professor Hitt and Professor Schmalensee.

1:19:56PM **MS. DUNN:** Mr. Spalding, if we can go to Dr. Lafontaine's Slide 7.

1:20:00PM **BY MS. DUNN:**

1:20:00PM **Q.** And I would like to follow up, Dr. Lafontaine, on what

1:20:03PM

you've talked about already with regard to the SSNIP test.

1:20:07PM

Can you please explain -- you see on the slide that you prepared there's one part that talks about the hypothetical monopolist test and another part that talks about SSNIP test.

1:20:16PM

What is the difference between these two things and how do they relate?

1:20:24PM

A. So the hypothetical monopolist test, one way to think about that is it is not exactly a test, it is a framework or a conceptual exercise. It is trying to think about market definition, what are the limits of the market, by looking at if I was to combine in a single firm a set of products that currently are not part of the same firm -- and you can see why this was partially developed in the context of merger analysis -- if we were to combine these products in a single firm, would that firm have incentives to increase the price in a -- would that be profitable for the firm to do. So it's kind of that conceptual notion, as opposed to an actual quantitative test.

1:21:00PM

So people typically use SSNIP as a way of talking about a specific quantitative version of the hypothetical monopolist test in some sense, where the standard thing is to look for a 5 percent or a 10 percent increase in price, whether that would be profitable.

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Q. And in defining a market, do you need to do a SSNIP test?

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A. No, you don't. So a lot of the reasons for the SSNIP

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1:21:44PM

test -- what the SSNIP test helps you see is whether the market is too narrow.

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The agencies, for example, in thinking about a variety of monopolization and merger cases, have to very often have the other side --

1:22:04PM

MR. BORNSTEIN: Excuse me, Your Honor, I -- excuse me. I object -- to the extent the witness is talking about the agencies from a legal perspective, I would object. To the extent she is talking economics, I have no objection at all.

1:22:18PM

THE COURT: That is an appropriate objection. I will admit it for that limited purpose.

1:22:26PM

THE WITNESS: So they often have to justify -- or parties often want a broader market than what the agencies are trying to define. And as a result of that, trying to -- having a test that allows them to say whether it is too narrow or not is really helpful.

1:22:48PM

So that said, it can be a very informative piece of information, so I'm not trying to say anything other than that. The SSNIP test is a useful test to determine the boundaries of markets, obviously.

1:23:02PM

BY MS. DUNN:

1:23:02PM

Q. And from your perspective as an economist, what, if any, value does a SSNIP test have in the single-brand market?

1:23:11PM

A. So in the single-brand market, it's really puzzling to do a SSNIP test in the sense that you've already stipulated that

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1:23:21PM you're just looking at a particular firm and its products. So
1:23:25PM that firm already has a hundred percent of the products that
1:23:29PM you are talking about, and so the SSNIP test is -- just
1:23:33PM conceptually, the exercise is not very valid.

Q. Okay. And did you do a SSNIP test in this case?

A. No, I did not.

Q. And can you apply the opinion you just stated to
1:23:45PM Dr. Evans' SSNIP test in this case?

A. So he has two tests that are one-sided tests of the iOS
1:23:57PM app distribution market, which he defines to be just for iOS
1:24:01PM and, therefore, are single-brand markets. So those don't
1:24:07PM provide much information.

What he finds at the end is that Apple could charge higher
1:24:14PM commission, is what, according to his analysis, results from
1:24:20PM the test that he performed on that particular market. But,
1:24:23PM again, even the conceptual exercise in that context is
1:24:29PM problematic.

Q. Okay. Why is it problematic?

A. Because you started by saying the firm has all of the
1:24:34PM markets, so asking what would -- which -- what would the
1:24:39PM company want to do if it had all the market, then it's
1:24:44PM circular.

MS. DUNN: All right. Mr. Spalding, if we can go to
1:24:49PM Dr. Lafontaine's Slide 8, please.

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BY MS. DUNN:

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Q. So this slide refers to Dr. Evans' single-sided SSNIP

1:25:00PM

test.

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Just clarify, if you would, why it says "single-sided."

1:25:04PM

A. Well, so Professor Schmalensee has already discussed the two-sided SSNIP tests that are done by Dr. Evans, so this slide is mostly focusing on the other four, on four of his seven tests.

1:25:23PM

So this slide is about the one-sided market tests. And the first point that it mentions is that given that he's agreed that it -- that the App Store is a two-sided platform -- transaction platform, the SSNIP tests don't take into account the indirect network effects and, therefore, are problematic.

1:25:44PM

So all four of these tests, the single-sided SSNIP tests, suffer from the flaw and from the other three that I have on there.

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Q. Okay. What about this -- you just addressed the first point. What about the second point on the slide?

1:25:56PM

A. So the tests that he is performing also don't allow -- the information that he's using doesn't really give consumers or developers the options to engage in the most obvious type of substitution that they might want to engage in.

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So for developers, for example, the test is testing -- is arguing about leaving the platform entirely instead of

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1:26:28PM changing monetization or increasing price or something like
1:26:32PM that. For the consumers, the test is focused on not having
1:26:39PM access to different activities and things like that.

1:26:44PM So he's just not allowing -- he's not allowing the
1:26:49PM consumers to just go and buy, for example, V-Bucks on the
1:26:53PM website and then bring them back into the platform where they
1:26:58PM might want to use them. So there are other options that are
1:27:00PM available to both consumers and developers that are not taken
1:27:04PM into account in the way that he performed his analysis.

1:27:08PM **Q.** Thank you, Professor Lafontaine.

1:27:09PM If you could explain your third point on the slide.

1:27:13PM **A.** So the third point is about the prices that he's going to
1:27:17PM use. So a SSNIP test starts from the price of a product and
1:27:23PM asks if the firm would want to increase it by 5 or 10 percent.

1:27:29PM So here, the -- for example, for the operating system, he
1:27:34PM doesn't have a price for the OS -- the iOS, so he uses a
1:27:39PM price for a product that was sold 10 years ago, which is the
1:27:43PM Windows operating system. The price he uses is from 10 years
1:27:49PM ago and it's a price to makers of phones, so to OEMs, and the
1:27:56PM price that he finds is \$30 or \$50. So the SSNIP that he
1:28:01PM applies to that is 10 percent, which means he says would it be
1:28:05PM profitable to increase price by \$3 or by \$5.

1:28:10PM And then having found that would be the right level of
1:28:13PM price change to look at, he says, okay, well, \$3 or \$5 is so
1:28:20PM small compared to the price of a phone that no one would

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1:28:23PM really react to that. But the product that he was talking
1:28:28PM about was the operating system, and he is then interpreting it
1:28:34PM in terms of the -- relative to the price of the phone. So
1:28:37PM that kind of issue comes up in his tests.

1:28:41PM Q. And to finish this out, what about the fourth point?

1:28:46PM A. So Dr. Evans actually said that he doesn't have real-world
1:28:52PM data on price changing -- price changes that would lead to a
1:29:00PM change in -- that would lead to substitution.

1:29:02PM And, in fact, that is the reason that the experts on
1:29:05PM the -- that I didn't perform any SSNIP test, is that there
1:29:12PM isn't really data on substitution patterns that we could use
1:29:14PM to do that because there aren't price changes.

1:29:18PM Q. And are these four flaws with the single-sided SSNIP tests
1:29:23PM the only flaws that you found?

1:29:25PM A. No, there are others. They are described in my written
1:29:28PM direct. But these were things that applied to -- across the
1:29:35PM tests.

1:29:39PM **THE COURT:** Do you know where he gets the \$10 figure?

1:29:42PM **THE WITNESS:** Sorry. Could you say that again?

1:29:44PM **THE COURT:** Do you know where he got the \$10 figure?

1:29:48PM **THE WITNESS:** If I interpret that correctly, that
1:29:52PM would be on the developer side. He has a \$10 SSNIP because
1:29:56PM they pay \$99 to get access.

1:29:58PM **THE COURT:** Okay.

1:30:02PM

BY MS. DUNN:

1:30:02PM

Q. And, Dr. Lafontaine, do you have an example of a SSNIP done with actual data?

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A. So I can think of one that colleagues have done. The Humana/Aetna case had a very nice illustration of -- they had a lot of data, so they were able to calculate the whole demand substitution pattern. Fundamentally, that is the ingredient that one needs to be able to do this, is to be able to see price changes and reactions by consumers so that you can estimate how consumers reallocate their choices when prices change. And so they had very detailed data about that across different geographic markets, and they were able to estimate a good demand system.

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And once you do that, you are able to then really do a comparison of what happens if these products are all owned and managed by a single firm, so what are the prices they would want to charge in that case, how high are they. And then you can compare, are they 5 percent higher, are they 10 percent higher. So they had all the detailed information that one would need to be able to perform a very nice test.

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THE COURT: Was that a private case or a government case?

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THE WITNESS: A government case, a DOJ case.

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MS. DUNN: Mr. Spalding, if you could put up Dr. Lafontaine's Slide 9.

1:31:32PM

BY MS. DUNN:

Q. I would like to switch gears and talk a little bit about Dr. Evans' foremarket and aftermarket framework.

In your opinion, should the foremarket and aftermarket framework be applied in this case?

A. No, it should not.

Q. Why not?

A. So consumers don't really -- because of multihoming, which I think has been discussed quite a bit in the previous testimony, consumers don't really need to incur the cost of changing their device or even switch the device that they are using in order to transact. So they can go buy V-Bucks on Safari while on the phone, as well as being on a PC or anything else.

So there are lots of ways that they can reach and make transactions, and as a result of that, they don't -- there's not a foremarket product that kind of locks them into the aftermarket purchases having to be done in a particular way.

THE COURT: And what data do you have for that proposition?

THE WITNESS: So we have data about game developers being present on lots of different platforms. I am relying, in part, on Dr. Hitt's analysis on that. And we have data about consumers of games having other devices. Dr. Henson's survey elaborated on that.

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THE COURT: And that's all?

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THE WITNESS: There's been, in my understanding, some testimony, as well, that presented that.

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THE COURT: Based -- aside from the other testimony, I'm interested on what your opinion is based. So your opinion is based on Dr. Hitt --

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THE WITNESS: And Dr. Henson's survey.

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THE COURT: Okay. Go ahead.

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MS. DUNN: Thank you.

1:33:30PM

BY MS. DUNN:

1:33:30PM

Q. And, Dr. Lafontaine, when you say the issue is

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transactions, as opposed to iOS app distribution, what do

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you mean by that?

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A. Well, so this is a two-sided transaction platform. What the App Store allows consumers and developers to do is to meet and transact on the platform. So that makes -- that is a different type of exchange than simply buying something and owning it and not having further transactions about it. So it's a difference, in part, between pay and play, the fact that you are able to -- like for certain products, you just pay for them and take them home or you have them on your phone or something. But in a lot of cases that we have here, you also have the opportunity to pay somewhere and then play somewhere else.

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MS. DUNN: If we can go to your Slide 10.

1:34:39PM

BY MS. DUNN:

1:34:39PM

Q. All right. So you just explained that, in your opinion, the foremarket/aftermarket framework does not apply, but for the purposes of this question, let's assume it does apply.

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Does that mean that there's anticompetitive harm?

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A. So economists usually think in terms of three factors to -- as to determine whether that is an issue whether -- so a foremarket/aftermarket context can arise without raising anticompetitive concerns, as I've just said.

1:35:19PM

When trying to analyze whether it does, we would look at whether there is competition in an appropriately defined foremarket. So an issue with the current framework that Dr. Evans has proposed is that the market -- the operating system is not something that consumers buy and it is also not something that developers buy. What consumers buy is a device, and there is much more competition in the device market than there is in the -- so there is competition in that market.

1:35:56PM

You would also look to see whether information has been available about the aftermarket terms and the costs of the device after you've made the original purchase. And there is -- there are lots of websites, there is a lot of information about phones and options, as well as there's different ways to use the phone where you would use more or less apps. And so there are lots of ways in which one can

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- 1:36:28PM think about what their cost would be after having purchased
1:36:31PM the phone.
- 1:36:33PM And then, finally, it's important to determine whether
1:36:36PM there's been changes in the aftermarket terms. And what we've
1:36:41PM heard is that -- from Dr. Evans is that there has not been
1:36:47PM changes in the aftermarket terms.
- 1:36:51PM Q. And when you say that, what are you speaking about
1:36:56PM specifically?
- 1:36:57PM A. I'm speaking about the commission and the specific -- you
1:37:02PM know, the constraints that Dr. Evans has mentioned in terms of
1:37:06PM exclusivity.
- 1:37:10PM MS. DUNN: Your Honor, I pass the witness.
- 1:37:13PM THE COURT: Cross. Mr. Bornstein, you may proceed.
- 1:37:13PM MR. BORNSTEIN: Thank you.
- 1:37:29PM **CROSS-EXAMINATION**
- 1:37:32PM BY MR. BORNSTEIN:
- 1:37:39PM Q. Gary Bornstein for Epic. Professor, nice to meet you.
- 1:37:44PM A. Nice to meet you as well.
- 1:37:45PM Q. You just answered a question a bit ago from Apple's
1:37:50PM counsel about the Humana/Aetna transaction.
- 1:37:52PM Do you recall that?
- 1:37:53PM A. Yes.
- 1:37:54PM Q. Is that in any of your expert reports?
- 1:37:57PM A. That one specifically, that example, no.
- 1:38:01PM MR. BORNSTEIN: Your Honor, I'd move to strike that

1:38:02PM portion of the testimony.

THE COURT: Granted.

BY MR. BORNSTEIN:

Q. Professor, prior to this case, you've never served as an expert in a Sherman Act matter, have you?

A. I think that that would be correct.

Q. Okay. And prior to this case, you've never served as an expert providing an opinion on the subject of market definition, correct?

A. Correct.

Q. And you've never served as an expert providing an opinion related to two-sided platforms, correct?

A. Correct.

Q. And you've not published any articles on the subject of market definition in antitrust, correct?

A. You're right.

Q. Nor have you published any articles on the subject of two-sided platforms, correct?

A. Correct.

Q. And just to follow up on a question that you responded to from the Court, so that it's clear, am I correct that you haven't done any independent analysis of the market data here?

A. So my team worked with the team that supported Professor Hitt, and I had questions at times that I would convey and that I would get answers about. But I have not done analysis

1:39:31PM directly.

1:39:32PM **Q.** Okay. And you're not offering an opinion based on any data that you or even your team have constructed, you're relying on the data work done by Professor Hitt and Professor Hanssens; is that right?

1:39:47PM **A.** That's correct. Just like I did when I was managing people at the Federal Trade Commission, I relied on their expertise.

1:39:56PM **Q.** Very good.

1:39:59PM At the beginning of the examination by Ms. Dunn, there was some discussion about whether market definition begins with the product or with the conduct.

1:40:10PM Do you recall that?

1:40:12PM **A.** I do recall.

1:40:13PM **Q.** And your testimony was that you don't begin with the conduct; is that right?

1:40:17PM **A.** That's correct.

1:40:20PM **Q.** Do you recall saying in your rebuttal report that the general role of market definition in antitrust matters is to identify the competitive constraints relevant to the conduct at issue?

1:40:32PM **A.** I do recall that.

1:40:34PM **Q.** And you continue to stand by that?

1:40:37PM **A.** Yes, because -- so what I was being asked about is product definition, is my understanding.

1:40:44PM

Q. Well, this was your report, and you wrote -- and I am happy to show it to you if that's helpful. "The general role of market definition in antitrust matters is to identify competitive constraints relevant to the conduct at issue."

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Those are your words?

1:40:59PM

A. Those are my words.

1:41:00PM

Q. Okay. And do you stand by those words from your rebuttal report?

1:41:04PM

A. I do.

1:41:05PM

Q. Okay.

1:41:05PM

A. The role of -- is -- so the role of market definition, what I was responding to was how -- how does product -- market definition, where does it -- how does it work.

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Q. So your testimony is in order to identify the competitive constraints relevant to the conduct, you start with the product.

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Am I understanding that?

1:41:33PM

A. Yes, the product at issue.

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Q. Okay. So you didn't say anything in your written direct testimony along the lines of what appeared in your rebuttal report about identifying the constraints relating to the conduct at issue; is that right?

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A. That might be -- yes. I will take your word for that, yes.

1:41:53PM

Q. Okay. So in this case, what is the product?

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1:42:00PM

A. So in this case, the product at issue is the capacity of consumers and developers to transact. So the product is transactions.

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Q. And is it any narrower than that or is it just transactions?

1:42:10PM

A. Well, it is the set of transactions that are relevant to the case at hand. So given -- we need to think about what are the ways in which consumers and developers in similar -- so similarly situated is the expression that I used in my report -- would be able to rely on in order to make these transactions.

1:42:13PM

Q. Well, how do you decide which transactions are the product here?

1:42:17PM

A. Well, so the product relates to what -- from a -- from the perspective of consumer welfare, right, we need to think about where the harm is, and that means which type of consumers are going to be involved in these types of transactions as well, right?

1:42:20PM

So the product at issue is the set of transactions that are relevant to the parties in this case.

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Q. And so your selection of the product depends on who the plaintiff is; is that fair?

1:42:35PM

A. Well, just like in the case of the wine distributor, it matters that I look at who else in the local market is available for the wine distributor to sell their wine and --

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1:43:57PM

as well as consumers to buy the wine.

1:44:00PM

It does matter that -- I have to think about what options are available to the similarly situated -- sorry, it is a word I have trouble saying -- developers and consumers.

1:44:18PM

Q. So I did my best not to interrupt, but I would appreciate it if you'd just try and focus on the question.

1:44:26PM

What I had asked was, whether your determination of a relevant product here for defining a market depends on the identity of the plaintiff. "Yes" or "no"?

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A. No, it does not.

1:44:41PM

Q. Okay. If a different plaintiff had brought this case, say the Match Group, would you go about defining the market beginning with game transactions?

1:44:54PM

A. Just like I said for the flower case, I would be looking for what the options are for flower shops.

1:45:02PM

So the answer to that would be that it would matter that this is an entity that is engaged in a different set of transactions.

1:45:14PM

Q. So in that case, your process for defining the relevant market does begin with the identity of the plaintiff and the product that it is affected by; is that fair?

1:45:27PM

A. So to me, that's not the identity -- it's the product that determines what the market definition is.

1:45:36PM

Q. All right. I'll try and take that on board.

1:45:40PM

The way you go about defining the market depends on the

1:45:44PM

plaintiff's product; is that correct?

1:45:48PM

A. So the -- in the sense of -- there's -- the conduct -- no, sorry. I'm struggling a little bit with trying to answer your questions. I'm trying my best.

1:46:05PM

It does matter that there is a set of options for this product. I need to think about what are the ways in which consumers and firms can reach each other, and, therefore, it does matter what product we're talking about.

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A. You mean in the App Store? Is that --

1:46:54PM

Q. No, I mean in the abstract.

1:46:56PM

A. Oh, okay. Yes, there are lots of products in -- you know,

1:47:02PM

available to consumers in the market.

1:47:07PM

1:47:11PM

1:47:16PM

1:47:20PM

A. Yes.

1:47:21PM

1:47:25PM

1:47:29PM

customers who purchase a common input from a supplier,
correct?

1:47:33PM

A. So you -- my difficulty here is that it might represent something -- so the input in question may differ to some degree across customers.

1:47:54PM

But I'm not sure exactly what you're trying -- so maybe I should ask you to repeat your question.

1:48:01PM

Q. I can try and give an example. Maybe that will advance things.

1:48:06PM

Assume a commodity market; somebody buys iron, somebody sells iron. And lots of people need the same iron. Some people are car makers, and some people make I-beams for skyscrapers. And let's just assume -- because it is over my degree in metallurgy, let's assume it's all the same item, okay?

1:48:30PM

There are markets like that where there are heterogeneous businesses that purchase a common input, correct?

1:48:38PM

A. Well, in your iron case or metal -- I'm also not good in metallurgy -- there would usually actually be different versions of this product that might be used by different types of customers, and they might have different options as to what they could use instead of the iron. So...

1:48:58PM

Q. Professor, I tried to deal with the first part of that by asking you to assume that they are all buying the same commodity, okay?

1:49:01PM

1:49:05PM

1:49:08PM **A.** Right. So in the commodity market, we -- there would be a more consistent -- there are not many commodities that -- out there, but -- because most products are differentiated to some degree. But, yes, if it is a single commodity that everyone is purchasing, you could have a market that is defined just based on that one product.

1:49:39PM **Q.** Okay. Let's transfer this discussion to American Express, who we've talked about a lot in this case.

1:49:50PM American Express provides credit card services, among other things, correct?

1:49:55PM **A.** Yes.

1:49:56PM **Q.** And American Express provides credit card services to a wide variety of merchants; is that right?

1:50:03PM **A.** Yes.

1:50:04PM **Q.** And they are all receiving or purchasing from American Express the same thing, right?

1:50:16PM **A.** That -- you -- yes.

1:50:18PM **Q.** Okay. And some of those customers of American Express are businesses, right?

1:50:27PM **A.** Yes.

1:50:28PM **Q.** And they may be in a wide variety of businesses that don't actually compete with one another, correct?

1:50:36PM **A.** Yes.

1:50:37PM **Q.** You can have a restaurant or a hotel or a bowling alley, right?

1:50:42PM

A. Right.

1:50:44PM

Q. Now, let's take that into the world of the App Store.

1:50:48PM

You claim that Dr. Evans' market is properly defined as a cluster market -- well, I should say you say it --

1:50:58PM

A. Would not be --

1:51:00PM

Q. -- should be described as a cluster market, but that it is not, in fact, properly a cluster market, fair?

1:51:03PM

A. That would be fair.

1:51:06PM

Q. Okay. Tell me, what do you think he is clustering together wrongly?

1:51:13PM

A. He's clustering together apps that are not substitute for one another and that don't face -- so on the cluster side, they don't face the same competitive -- the transactions don't face the same competitive conditions.

1:51:28PM

Q. The apps are not the product here, correct?

1:51:33PM

A. The transactions are the product.

1:51:35PM

Q. The transactions are the product.

1:51:37PM

Which transactions are you talking about? Who are the parties to these transactions?

1:51:41PM

A. Consumers and developers.

1:51:43PM

Q. And what is the specific product that the App Store is providing to these consumers and developers?

1:51:48PM

A. Transactions. Did I miss something?

1:51:52PM

Q. No, the --

1:51:57PM

A. Okay.

LAFONTAINE - CROSS / BORNSTEIN

1:51:59PM

Q. So what type of -- I'll do it this way.

1:52:02PM

The App Store is not, for example, selling coffee, right?

1:52:09PM

A. No, I don't think so.

1:52:10PM

Q. Okay. And I promised no banana, but I can't resist.

1:52:13PM

The app store is not selling Agent Peely costumes, right?

1:52:18PM

A. I agree with that.

1:52:19PM

Q. Okay. What the App Store is selling is it's selling

1:52:24PM

transaction services both to the Starbucks app and to users at

1:52:28PM

the same time, correct?

1:52:29PM

A. Correct.

1:52:30PM

Q. And the transaction services that it provides are things

1:52:33PM

like search and discovery, marketing promotion, and so forth;

1:52:38PM

is that fair?

1:52:39PM

A. That would be fair.

1:52:40PM

Q. And the App Store provides those same services to

1:52:44PM

Starbucks and to Waze and to Fortnite when Fortnite was on the

1:52:51PM

App Store, correct?

1:52:53PM

A. Well, it actually highlights games in a separate tab and

1:52:57PM

makes them, you know, more visible to consumers who go in and

1:53:03PM

want to purchase games. So it does actually separate out

1:53:07PM

different categories and treats them separately.

1:53:10PM

Q. Well, it is providing a marketing service, and that is

1:53:12PM

just doing a marketing service. It's not a different service

1:53:17PM

that it is providing, correct?

1:53:20PM

A. Well, they have the game -- have their own manager at

1:53:26PM Apple that kind of oversees certain things about games that
1:53:31PM may be different from what they need to look into for cooking
1:53:35PM apps, for example.

1:53:36PM **Q.** And at the iron manufacturer, there may be somebody who is
1:53:40PM responsible for overseeing the relationship with the
1:53:43PM automobile manufacturers, but that doesn't make it a different
1:53:47PM market, correct?

1:53:48PM **A.** Well, so in some sense, I think it still matters that the
1:53:56PM automobile manufacturers, when you look at them as a set of
1:54:00PM customers for the -- I think you said iron. I don't know if
1:54:04PM they buy iron. So --

1:54:06PM **Q.** Neither do I.

1:54:07PM **A.** So if you look at these as customers, what are the options
1:54:12PM that car manufacturers have when it comes to the usage of this
1:54:15PM product, as opposed to what are the options that the consumers
1:54:19PM would have if we're talking -- you talked about beams and
1:54:22PM other things as well.

1:54:23PM So it matters that there would be other options that are
1:54:29PM available to the consumers in defining the market for these
1:54:34PM different products/usage that customers might make of them.

1:54:42PM **Q.** All right. So your testimony is that in the case of the
1:54:45PM iron manufacturer, you might define a separate market for
1:54:49PM automobile purchasers and beam purchasers and furniture
1:54:56PM purchasers?

1:54:57PM **A.** And I do think that they would tend to have, potentially,

1:55:00PM slightly different products that they are using, as well.

1:55:03PM But, yes, I would need to think about what are the options of

1:55:06PM the consumers that are using this product.

1:55:11PM Q. And in the App Store circumstance, the -- let me go to

1:55:18PM your Staples example.

1:55:20PM A. Mm-hmm.

1:55:20PM Q. In Staples, the product at issue or the products at issue

1:55:26PM were not transaction platforms like with American Express and

1:55:31PM the App Store, right?

1:55:32PM A. They were physical products.

1:55:34PM Q. Right. And there were different actual physical products

1:55:37PM being sold by these office superstores. There were literal

1:55:40PM staples and there were ink and toner, as you said, and other

1:55:48PM things, correct?

1:55:48PM A. That's correct.

1:55:48PM Q. And the reason that it was feasible to divide the market

1:55:52PM there or to come up with separate markets was because there

1:55:55PM were separate products that were being sold. One product was

1:55:59PM a printer, another product was ink, and another product was

1:56:04PM Scotch tape and so forth, correct?

1:56:06PM A. Well, using some of your logic, if I understand it

1:56:09PM correctly, you could also say that --

1:56:11PM Q. I am sorry, Professor. I just asked the question.

1:56:14PM A. Sorry, sorry. I was trying to think through what that

1:56:17PM meant. So please repeat the question.

1:56:20PM

Q. Sure. The question was in the Staples matter, there were separate products being sold. There was printer, there was toner, there was Scotch tape, and so forth.

1:56:30PM

A. Yes, I agree to that.

1:56:33PM

Q. Okay. And in the App Store case, there are not separate products being sold. You said a while ago the product is transactions, correct?

1:56:40PM

A. The product is transactions.

1:56:43PM

Q. And so the two situations are simply not analogous, because here we have just one product being sold to a heterogeneous set of customers, correct?

1:56:46PM

A. To me, game transactions have other competitive conditions, and, therefore, that affects how I would define the product for that set of transactions -- define the product market. Sorry.

1:57:01PM

Q. But the product is the same, correct?

1:57:08PM

A. It is transactions.

1:57:14PM

Q. And then you break it out because you are saying that there are different competitive conditions applicable to different customers buying the same product; is that correct?

1:57:20PM

A. There's -- there are -- yes, there are differences for the set of options that these customers have. I'm always starting from the product and thinking about what options the customers have.

1:57:28PM

Q. Okay. And is your games transaction market itself a

1:57:53PM

cluster market?

1:57:59PM

A. I would argue probably not.

1:58:03PM

Q. But there are different competitive conditions that are applicable to different games, fair?

1:58:11PM

A. Yes. But to -- and Dr. Evans, I think, has suggested, for example, that *Fortnite* has more options, for example, than other games would have. I don't disagree with that, but I think that, as I've said in my report, that one has to think about some natural boundaries.

1:58:37PM

And so, you know, shoes, women's shoes, we have high heels; we have flats. It's -- you know, even though some people might not see these different types of games as similar. It's also the case that in the aggregate, there is substitution between them. And the same thing with different types of shoes, and we still treat them as shoes.

1:59:02PM

Q. So if I understand the chain of logic, you have started with game transactions because Epic is the plaintiff, correct?

1:59:14PM

A. Not because Epic is the plaintiff, but because that is the type of thing that Apple and Epic interact on. That is the product that they interact on.

1:59:26PM

Q. Well, and the only reason you are looking at the product that they interact on is because Epic is the plaintiff, correct?

1:59:34PM

A. It is part of what the case, yes, entails.

1:59:37PM

Q. Okay. So you start with game transactions because that's

1:59:41PM the product that the plaintiff and Apple interact on, correct?

1:59:45PM **A.** Correct.

1:59:46PM **Q.** And you conclude that you shouldn't go any broader than that because there are different competitive conditions,

1:59:50PM correct?

1:59:55PM **A.** Yes.

1:59:56PM **Q.** Okay. And you also conclude that you shouldn't go any narrower than that, despite the fact that there are different competitive conditions applicable to different types of games,

2:00:03PM correct?

2:00:08PM **A.** Because there are other factors that one would want to think about. And in figuring out the boundaries of markets, we want to think about the qualitative evidence, including, for example, there is a -- it's a market that is recognized as a separate market. People don't break it into so many pieces. There are trade associations, there's different types of ways in which people recognize in the public that there's a game market, a game transaction market.

2:00:48PM **Q.** It's just an intuitive and natural grouping, in your view.

2:00:52PM **A.** It is.

2:00:53PM **Q.** So the rule about competitive conditions doesn't apply when you find a natural and intuitive grouping; is that how I should understand the approach here?

2:01:02PM **A.** There are limitations in -- we want to be looking at what people substitute between. And that means that we can't --

2:01:20PM

I'm trying to best answer your question.

2:01:25PM

It is -- there's a combination of qualitative/quantitative evidence that we use to define the market, and there will be some breaks in how we think about substitution across different types of products.

2:01:38PM

And, again, if you think about -- so products are differentiated. So if you think about shoes again, high heels and flats can be substitute for each other. Some people will buy only one kind; some other people won't. And if you do a -- you can do a demand estimation and find out what are the substitution patterns between those products.

2:02:09PM

Q. So I don't know if the answer to my question was yes or no, Professor, so I will try it again.

2:02:14PM

The chain of logic here is that you have a -- you start with competitive conditions being different, and so you, therefore, stick with game transactions. But then you don't consider the different competitive conditions that are applicable to individual games because you find that to be a natural and intuitive grouping.

2:02:35PM

Is that a fair summary?

2:02:37PM

A. So I will -- so what I said is that a market definition includes -- involves finding the products that are substitutes for each other. If they are not substitutes for each other, then you go to clustering.

2:02:49PM

Q. Okay. And the -- but the product here, I thought we

2:02:53PM agreed, was the transactions.

2:02:55PM **A.** Yes.

2:02:55PM **Q.** And the transactions are the same across all apps,

2:03:00PM correct?

2:03:02PM **A.** The transactions are actually not exactly the same. The

2:03:09PM monetization of different apps are different. There's

2:03:14PM different ways in which people interact with transaction

2:03:17PM platforms where they can engage in these. So I see that as

2:03:22PM differences in these things. But --

2:03:22PM **Q.** So do I understand now correctly that the way you reach

2:03:29PM the point of saying that the product here is game transactions

2:03:33PM is because the transaction services provided to game apps are

2:03:36PM different from the transaction services provided to other

2:03:41PM kinds of apps?

2:03:44PM **A.** I mentioned that earlier, that there is a difference in

2:03:46PM the way that the --

2:03:47PM **Q.** I apologize. Is that the basis on which you've reached

2:03:51PM your product market definition here?

2:03:53PM **A.** I am sorry, I'm going to have to ask you to repeat that

2:03:56PM question, because that is very specific. You want a "yes" or

2:03:58PM "no" answer.

2:03:59PM **Q.** Sure. Is -- are you now testifying that there are

2:04:03PM differences in the transaction services provided to games as

2:04:08PM compared to the transaction services provided to other kinds

2:04:10PM of apps that form the basis of your conclusion as to the

2:04:16PM

proper product market definition here?

2:04:22PM

A. So there are similar services and there are additional different services. Yes, I would argue that.

2:04:37PM

Q. And is that the basis on which you are defining a games transaction market and excluding other transactions?

2:04:45PM

A. No. I used a lot of different kind of evidence to define the game transaction market.

2:04:51PM

Q. Okay. And if there were a plaintiff who had a variety of different kinds of apps, you would not necessarily reach the same result in terms of your product market definition, correct?

2:05:01PM

A. So I would have to look at what are the different types of transactions -- app transactions that they engage in and --

2:05:12PM

Q. So you --

2:05:22PM

A. -- create potentially different markets based on those.

2:05:25PM

Q. All right. And when you formed your opinion in this case, you were not aware of all of the different kinds of apps that Epic develops, correct?

2:05:37PM

A. I was not fully aware, you're correct.

2:05:40PM

Q. You did not have a list of the different types of apps, correct?

2:05:43PM

A. That's correct.

2:05:45PM

Q. And you did not ask for such a list, correct?

2:05:47PM

A. Correct.

2:05:48PM

Q. And you did not ask if Epic had any nongame apps, correct?

2:05:54PM **A.** Well, I was aware of the *Unreal Engine* --

2:05:59PM **Q.** Okay.

2:05:59PM **A.** -- correct.

2:06:01PM **Q.** And when you formed your opinion, you did not know that

2:06:04PM Epic was the developer of the *Houseparty* app, correct?

2:06:07PM **A.** That's correct.

2:06:08PM **Q.** And you hadn't actually heard of *Houseparty* at the time of

2:06:12PM your deposition, correct?

2:06:13PM **A.** That's correct.

2:06:13PM **Q.** Although *Houseparty* is mentioned in the Court's

2:06:16PM preliminary injunction order, isn't it?

2:06:19PM **A.** I may have missed that. Sorry.

2:06:21PM **Q.** You did review the preliminary injunction order, did you

2:06:23PM not?

2:06:24PM **A.** I did.

2:06:25PM **Q.** And I guess you didn't ask what it was and nobody

2:06:28PM mentioned it to you.

2:06:30PM **A.** I -- yes, I'll agree with that.

2:06:34PM **Q.** And you know now what *Houseparty* is, right?

2:06:37PM **A.** Vaguely, yes.

2:06:39PM **Q.** It is a social networking app with a video chat?

2:06:42PM **A.** Right.

2:06:43PM **Q.** And do you know that it is listed in the "Social

2:06:45PM Networking" category on the App Store?

2:06:48PM **A.** I have not looked for that.

LAFONTAINE - CROSS / BORNSTEIN

2:06:51PM Q. And had you known that Epic was the developer of a social networking app, that's something that you would have incorporated in the process of coming up with your market definition, correct?

2:07:05PM A. I would have considered what it was and what it means, yes.

2:07:12PM Q. And you said you knew about the *Unreal Engine*-related apps that are on the App Store, correct?

2:07:21PM A. No, I said I knew about *Unreal Engine* itself.

2:07:24PM Q. Okay. Are you not aware that there are *Unreal Engine*-related apps that are on the App Store?

2:07:29PM A. I am aware of that as well.

2:07:30PM Q. Okay.

2:07:30PM A. I was just clarifying what I said earlier.

2:07:34PM Q. Thank you.

2:07:34PM Were you aware of that when you formed your opinion in this case?

2:07:37PM A. I was aware that there are -- that *Unreal Engine* is used to develop apps. My understanding is that a lot of those would also be games.

2:07:48PM Q. Okay. Slightly different question I'm trying to ask. I'm sure the miscommunication is mine.

2:07:54PM Are you aware that there are Epic-developed *Unreal Engine* apps that Epic makes available to developers on the App Store for the developers to use in designing their own products?

LAFONTAINE - CROSS / BORNSTEIN

- 2:08:15PM A. Please say that again. I am sorry.
- 2:08:18PM Q. Sure. The question is whether you're aware that Epic develops apps that are associated with the *Unreal Engine* that go onto the App Store that are targeted for developers to use in the developer's own work on their products. They are tools for developers.
- 2:08:31PM A. That's the way I understood what *Unreal Engine* fundamentally is.
- 2:08:36PM Q. Okay. And did you understand that there were apps for that purpose that are on the App Store?
- 2:08:42PM A. I didn't inquire about that specifically.
- 2:08:44PM Q. So you didn't take that into account either in developing your market definition in this case.
- 2:08:48PM A. So, again, if -- so --
- 2:08:51PM Q. Sorry, Professor. Did you take it into account in developing your market definition opinion in this case or not?
- 2:08:55PM A. My -- I don't know how to answer that question in part. I guess I'll say no.
- 2:09:01PM Q. But you weren't --
- 2:09:05PM A. That would be closest.
- 2:09:08PM Q. You weren't aware of the apps, so you couldn't have taken them into account --
- 2:09:17PM A. I was --
- 2:09:24PM Q. -- isn't that fair?
- 2:09:27PM A. Again, I was aware of *Unreal Engine* itself, and so I knew

2:09:37PM that that was being used by developers. So I still, you know,
2:09:42PM also heard a lot about Fortnite and other games that Epic has,
2:09:46PM and so that was what I knew about -- yeah.

Q. Okay. Speaking of games, you don't provide a definition
2:09:56PM of "game" in your testimony or any of your reports, correct?

A. No, I do not.

Q. Okay. You had some discussion with Ms. Dunn about the
2:10:10PM difference between a hypothetical monopolist test and the
2:10:13PM SSNIP test.

2:10:13PM Do you recall that?

A. I do.

Q. And you said that you had not done a SSNIP test in this
2:10:19PM matter, correct?

A. That's correct.

Q. You also did not do a hypothetical monopoly test either,
2:10:26PM correct?

A. I think the correct answer to that would be that,
2:10:33PM conceptually, thinking about what that would mean, I was not
2:10:45PM worried that the market would be too narrow, is, I guess, the
2:10:50PM main thing that I -- I didn't do an actual test, so I'm just
2:10:55PM trying to answer your question but without -- so I would say I
2:11:02PM did not.

Q. Okay. I think you answered it. You did not do a
2:11:06PM hypothetical monopoly test -- monopolist test in this case,
2:11:10PM correct?

2:11:11PM

A. Well, again, you know, I considered whether the market definition encompassed what I thought -- conceptually, I thought about what that might mean. But it -- I didn't do any quantitative test.

2:11:14PM

Q. Well, again, I'm not asking about quantitative test. I tried to stay away from that by not asking about the SSNIP.

2:11:25PM

You also did not do a conceptual hypothetical monopoly test, correct?

2:11:30PM

A. The boundary between doing one of those in your head and kind of thinking through it and not is a little bit fuzzy to me, so I have difficulty being very -- so I had -- again, I'll just say no. I think it's a simpler way to answer your question.

2:11:36PM

2:11:42PM

2:11:47PM

2:11:50PM

2:11:59PM

2:12:04PM

2:12:07PM

Q. I'm not looking for any particular answer; I just want to understand what you did and didn't do, Professor.

2:12:10PM

You did --

2:12:16PM

THE COURT: Can I ask, who came -- whose definition came first, yours or Hitt's or Hanssens?

2:12:22PM

2:12:26PM

THE WITNESS: Definition of the market? Is that what --

2:12:29PM

2:12:30PM

THE COURT: Yes.

2:12:34PM

THE WITNESS: I would say not Hanssens. We had some discussions, and I think we arrived, Hitt and Schmalensee and I, working together, to that definition, I would say.

2:12:41PM

2:12:48PM

2:12:55PM

THE COURT: All right. Thank you.

2:12:56PM

MR. BORNSTEIN: May I proceed?

2:13:00PM

THE COURT: You may.

2:13:00PM

MR. BORNSTEIN: Thank you.

2:13:03PM

BY MR. BORNSTEIN:

2:13:03PM

Q. You said a little while ago in response to one of my questions, if I recall, that you think it is appropriate to define a market in intuitive and natural groupings, correct?

2:13:13PM

A. Yes.

2:13:13PM

Q. And the grouping that you have come up with here is a market that includes transactions on game consoles, but only if they are digital transactions on game consoles that excludes retail games purchased for a game console and excludes digital transactions on a game console if they are not games.

2:13:42PM

Is that fair?

2:13:44PM

MS. DUNN: Objection to form.

2:13:46PM

THE COURT: Overruled.

2:13:47PM

THE WITNESS: Sorry, I didn't hear the -- do I answer?

2:13:50PM

THE COURT: Yes.

2:13:51PM

THE WITNESS: Thank you.

2:13:56PM

Could you repeat the question?

2:13:58PM

BY MR. BORNSTEIN:

2:13:59PM

Q. Maybe.

2:13:59PM

The market that you've come up with that you say is

2:14:02PM intuitive and natural here is a market that includes

2:14:07PM transactions on a game console, but only if they are digital

2:14:11PM transactions, but not digital transactions for something other

2:14:15PM than games, and excluding retail transactions for products to

2:14:22PM be used with game consoles, like disks; is that correct?

2:14:26PM **A.** Okay. So I -- yes in terms of the definition of the

2:14:34PM market that I used.

2:14:35PM **Q.** And you consider that to be an intuitive and natural

2:14:38PM grouping.

2:14:38PM **A.** I explained in my report that it was my understanding

2:14:44PM that, given that this is a two-sided transaction platform,

2:14:49PM the -- not necessarily based on economics, but from a legal

2:14:53PM perspective, it would be considered appropriate to restrict it

2:14:59PM to other two-sided transaction platforms.

2:15:02PM I also explained if we include these others, it just means

2:15:06PM that the Apple market share would be lower.

2:15:09PM **Q.** So two questions from that.

2:15:10PM First of all, Professor, just do you consider that to be

2:15:13PM an intuitive and natural grouping? That was my question.

2:15:16PM **A.** Oh, I didn't understand that.

2:15:17PM I do consider this to be an intuitive grouping, given

2:15:23PM where these transactions can occur.

2:15:25PM **Q.** And yet you just testified that the reason you came to

2:15:28PM this grouping was, in part, because of your understanding of

2:15:31PM the law; is that correct?

LAFONTAINE - CROSS / BORNSTEIN

2:15:32PM

A. I did mention in my report that because of what I understood the law would require, I restricted it further than what I might have done from an economic perspective.

2:15:48PM

Q. And you landed on something that you think to be intuitive and natural, but that you landed on only because of your understanding of legal restrictions and you otherwise would have landed somewhere else as intuitive and natural, correct?

2:15:51PM

A. I might well have included more of the direct distribution, yes.

2:15:55PM

Q. Now, you've not seen data, Professor, about --

2:15:58PM

MR. BORNSTEIN: I'm going to withdraw that question,

2:16:03PM

Your Honor.

2:16:06PM

THE COURT: Okay.

2:16:20PM

BY MR. BORNSTEIN:

2:16:26PM

Q. You're aware that there are certain iOS games that are not available on consoles; is that right?

2:16:31PM

A. Yes, I'm sure.

2:16:34PM

Q. And you've not done any kind of analysis of how many of the popular iOS games are or are not available on consoles?

2:16:46PM

A. I have not.

2:16:47PM

Q. Okay. And aside from *Fortnite* and *Minecraft* and *Roblox*, which I believe you mentioned in your deposition, you're not aware whether or not any other iOS games are available on gaming consoles; is that correct?

2:17:01PM

A. As I said, I didn't do that analysis.

2:17:05PM

Q. Okay. In your written testimony to the Court, you say in paragraph 48 that "Apple doesn't prevent developers from steering consumers to other platforms by charging less on these platforms and more on the App Store."

2:17:14PM

Is that at least a close enough summary of your testimony?

2:17:18PM

A. My testimony -- I believe -- sorry, I'm having difficulty with the microphone here. I got stuck. So the -- could you repeat --

2:17:23PM

Q. Sure.

2:17:26PM

A. -- or point me to a particular section? Is that something you want to do?

2:17:31PM

Q. If you have it in front of you, that's fine. I'm looking at paragraph 48.

2:17:38PM

A. Of my rebuttal report?

2:17:46PM

Q. No, no, no, your written direct testimony to the Court dated May 3rd -- well, no, trial date May 3rd. It doesn't seem to have a date on it. Maybe if I look at your signature.

2:17:47PM

Do you have it, though?

2:17:48PM

A. Yes, I have it.

2:17:51PM

Q. Okay. You have paragraph 48?

2:17:55PM

A. Yes, I have that.

2:17:59PM

Q. All right. And in paragraph 48, you say in the second sentence, "Nothing in Apple's license restricts developers from offering transactions on other platforms or steering consumers to other platforms by charging less on these

2:18:07PM

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2:18:37PM platforms or more on the App Store."

2:18:40PM I read that correctly?

2:18:43PM **A.** You read that correctly.

2:18:43PM **Q.** All right.

2:18:43PM **A.** So what -- but "steering" is in quotes.

2:18:46PM **Q.** Thank you for the clarification. "Steering" is indeed in quotes.

2:18:50PM You are aware that while developers can price differently on the App Store and other platforms, Apple does not allow developers to tell users in the app that they have done so, correct?

2:19:04PM **A.** That is correct.

2:19:06PM **Q.** And Apple does not allow developers to provide any kind of link in their iOS app to other platforms on which transactions can be had.

2:19:19PM **A.** That's my understanding.

2:19:20PM **Q.** And Apple does not allow targeted communications like email to inform people of that either, correct?

2:19:23PM **A.** You have the word "targeted" in there, so yes. Targeted to iOS users, right.

2:19:34PM **Q.** You mentioned Dr. Hanssens and you relied on his survey, in part, for your opinions in this case, correct?

2:19:40PM **A.** That's correct.

2:19:45PM **Q.** And in forming your opinions, you have the understanding that Professor Hanssens survey was intended to address

2:19:55PM consumers' access to and ownership of devices that support game transactions; is that accurate?

2:20:02PM **A.** Yes.

2:20:05PM **Q.** And are you aware that -- well, there is nothing in the survey that actually asks about ownership; isn't that right?

2:20:12PM **A.** That's not my recollection.

2:20:17PM **Q.** The survey asks whether consumers have just regularly used a device in the last 12 months, without regard to ownership; isn't that correct?

2:20:19PM **A.** That is correct.

2:20:24PM **Q.** And Professor Hanssens, in fact, has expressly disclaimed any intention to ask about ownership, correct?

2:20:28PM **A.** I don't know. I don't recall that part.

2:20:30PM **Q.** Okay. You identify in your games transaction market three different types of transactions: In-app purchases, downloads, and updates; is that accurate?

2:20:35PM **A.** That's correct.

2:20:38PM **Q.** Now, only one of those three types of transactions can actually be done on a different device; isn't that accurate?

2:20:40PM **A.** So my understanding is that it's actually possible to download an app on a different device from one's phone. But I am not well-versed in this.

2:20:50PM **Q.** So if I want to watch Netflix, I can sign into Netflix on my PC, right?

2:20:55PM **A.** Maybe. I've never tried, so -- yeah.

2:21:35PM

Q. Okay. I've done it, but I'm not here to testify.

2:21:37PM

And -- assume with me it can happen.

2:21:41PM

A. Yes.

2:21:41PM

Q. And then if I want to watch Netflix on my iPhone, though, I actually have to download the Netflix app onto my iPhone, correct?

2:21:47PM

A. I believe that's right.

2:21:52PM

Q. I can't substitute a download on one device for a download on the iPhone, correct?

2:22:01PM

A. Since my deposition, I've heard that it's possible to download certain apps from your phone to a different device, but --

2:22:10PM

Q. I deliberately asked it the other way around, Professor.

2:22:14PM

A. Yeah, okay. So then you're right.

2:22:15PM

Q. The only way to download an app onto the iPhone is on the iPhone; isn't that right?

2:22:20PM

A. That is right.

2:22:21PM

Q. There is no substitution possibility whatsoever for that kind of transaction in your market, correct?

2:22:25PM

A. It has to be done on the phone. That's what you mean, yes.

2:22:32PM

Q. Yes. And the same thing is true if you want to update the app. You have to go through the app store to update an app on the iPhone.

2:22:38PM

A. That's correct.

2:22:41PM Q. And those are transactions within the meaning of your market definition, correct?

2:22:45PM A. They are.

2:22:47PM Q. And there is literally no competition for those transactions other than to have them on the iPhone, correct?

2:22:50PM A. That's correct. That's taken into account in the way that market shares have been calculated.

2:22:55PM Q. And you also consider it to be an intuitive and natural grouping to put in-app purchases together in the same market with downloads and updates; is that accurate?

2:23:00PM A. Yes, because they contribute to satisfying the consumer need, which is the capacity to play games.

2:23:02PM Q. I want to talk about substitution for a little bit.

2:23:07PM For products to be in the same market, I think you said earlier there have to be substitutes, or reasonable substitutes, good substitutes, for one another; is that right?

2:23:12PM A. That's right.

2:23:16PM Q. And you view that from the perspective of the customers of the product.

2:23:30PM A. Yes.

2:23:34PM Q. And one of the substitutes that you believe is a good substitute for making a game transaction on your iPhone is to make a game transaction on a console that belongs to a friend, correct?

2:23:39PM A. I -- yes, it can be.

2:24:02PM Q. And one of the substitutes that you believe is a good substitute for making a game transaction on your iPhone is to make a game transaction on a console that belongs to a friend, correct?

2:24:07PM A. I -- yes, it can be.

LAFONTAINE - CROSS / BORNSTEIN

2:24:11PM

Q. So if I'm commuting to work, which I used to do before the pandemic, and I want to buy a cool skin on *Fortnite*, or I want to subscribe to *The New York Times* or boost my dating profile if I had such a thing, one thing I can do is while I'm on the train, I can just transact in the app on my phone, correct?

2:24:31PM

A. Yes.

2:24:38PM

Q. And an alternative is that after work, I could arrange to go over to a friend's house and use her PC or game console.

2:24:44PM

That's what you consider to be a good substitute to my

2:24:48PM

engaging in the transaction right there on the train; is that

2:24:51PM

correct?

2:24:55PM

A. Well, for many of the ones you've just mentioned, I think you could engage on the -- with -- you could engage in these transactions on the websites of the companies directly on your phone as well.

2:25:05PM

Q. Okay. That wasn't my question.

2:25:10PM

A. Sorry.

2:25:10PM

Q. My question was whether or not you consider it to be a good substitute for me to wait until after work and go to my friend's house and use her PC or console.

2:25:13PM

A. In some situations, it's going to be something that people do.

2:25:16PM

Q. And you think that a meaningful number of people would do that in response to a 5 or 10 percent price increase in the commission rate on transactions; is that your testimony?

2:25:24PM

2:25:27PM

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2:25:36PM

LAFONTAINE - CROSS / BORNSTEIN

2:25:40PM

A. You're using a specific example that is less likely to occur, but there are others where people are playing together on a console and they might well engage in transactions during that time.

2:25:44PM

So there's -- people play games together, as well, and so those are options that are available to them and can be good substitutes under certain circumstances.

2:25:48PM

Q. Again, you've now answered about some other set of transactions.

2:25:53PM

A. Yes.

2:26:05PM

Q. Do you consider the ones that I talked about good substitutes or not?

2:26:07PM

A. I don't consider the ones you talked about to be great. I don't disagree with that.

2:26:10PM

Q. In your expert rebuttal report, you noted that --

2:26:15PM

MR. BORNSTEIN: I'm going to withdraw that one as well, Your Honor. Save a little time.

2:26:19PM

BY MR. BORNSTEIN:

2:26:21PM

Q. So we talked a little about the foremarket and the aftermarket with Ms. Dunn earlier, correct? And I realize that you don't think it is the right framework to analyze these things here but let me just ask a conceptual question.

2:26:26PM

Do you agree that there are circumstances in which there can be competition concerns that arise in an aftermarket?

2:26:31PM

A. Yes.

2:27:05PM

Q. And one of the conditions that you say in your testimony needs to apply is that locked-in customers are surprised by unexpected changes in the aftermarket terms; is that correct?

2:27:22PM

A. That's correct.

2:27:22PM

Q. And in the context of the two-sided platform like the App Store, the customers, as you said earlier, are the developers and the users.

2:27:30PM

A. That's correct.

2:27:31PM

Q. So the developers are part of the customers.

2:27:34PM

And you are aware that when Mr. Jobs, Apple, announced the App Store in 2008, he told the world that he intended to run it -- or the company intended to run it on a break-even basis, correct?

2:27:49PM

A. I have heard that that was -- yes.

2:27:51PM

Q. And he did that, very logically, because he anticipated that having lots of apps would make the iPhone more attractive and help Apple sell devices, right?

2:28:04PM

A. I don't know what was on his mind, but this makes sense.

2:28:08PM

Q. Okay. That is a fair clarification.

2:28:09PM

And as it turned out, though, Apple has not run the App Store on a break-even basis, correct?

2:28:18PM

A. That is --

2:28:19PM

Q. And the --

2:28:19PM

A. Yes. We don't have the clear profitability analysis, but I will give you that.

LAFONTAINE - CROSS / BORNSTEIN

- 2:28:26PM Q. Right. There's a lot of dispute perhaps about the precise extent of the profit here, but can we at least agree that Apple makes a lot of money off of the App Store?
- 2:28:38PM A. I'll grant you that it's been a profitable business.
- 2:28:40PM Q. Okay. And that money comes from the developers, correct?
- 2:28:46PM A. Well, it's a two-sided transaction platform, so what side pays is a design issue that -- you know, the goal is to attract as many consumers as possible. There is more benefit this way for the developers, so I hesitate to pin it down on a particular side of the market.
- 2:29:14PM Q. Well, I'll do it this way: The money comes, at least directly, from the developers; is that fair?
- 2:29:20PM A. I think that that is fair.
- 2:29:22PM Q. And the developers may pass on some portion of those costs to their consumers, to the users, right?
- 2:29:26PM A. That is right.
- 2:29:30PM Q. Okay. You agree that most consumers have an iOS or an Android device, but not both at the same time, right?
- 2:29:44PM A. Yes, I agree.
- 2:29:45PM Q. And it is your view that you don't see a universe where more than a quarter of iOS users switch to Android every year, correct?
- 2:29:59PM A. I don't know about the universe. I don't remember talking about universes.
- 2:30:03PM Q. Did you testify at deposition that you don't see a

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2:30:08PM universe where more than a quarter of iOS users switch over
2:30:13PM to Android every year?

2:30:16PM **A.** As I stand here right now, I don't remember saying that,
2:30:19PM but it's possible that I did.

2:30:23PM **Q.** Okay. And I'll just ask you right now while you are here.

2:30:26PM **A.** Okay.

2:30:26PM **Q.** Do you see a universe in which a quarter of iOS users
2:30:31PM switch over to Android every year?

2:30:34PM **A.** It would have to be the case that the technology is
2:30:36PM deteriorating rapidly.

2:30:41PM **Q.** And right now, you have no reason to believe that that is
2:30:42PM actually what's happening --

2:30:45PM **A.** Correct.

2:30:45PM **Q.** -- correct? I'm sorry, I'm not sure if the court reporter
2:30:47PM got your answer.

2:30:47PM **A.** Sorry. I said correct.

2:30:47PM **Q.** Thank you.

2:30:47PM **A.** I keep banging into this.

2:30:51PM **Q.** Now, is it the case that for a game like *Fortnite*, users
2:30:57PM have preferences as to which device they place on?

2:31:02PM **A.** I would -- yes, of course.

2:31:03PM **Q.** And it's your understanding that people who have a console
2:31:06PM spend as much time as they can on that console, rather than
2:31:12PM playing on a smartphone, at least when it was available.

2:31:17PM **A.** I would assume that that -- that they might -- again, I

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2:31:25PM don't know -- you know, I'm not in their heads, but consumers
may make that choice, yes.

2:31:34PM Q. Okay. And you gave testimony at deposition --

2:31:36PM A. Yes.

2:31:36PM Q. -- to that effect, did you not?

2:31:38PM A. Yes.

2:31:39PM Q. Okay. And you agree also that multihoming is not, on its
own, evidence of switching, correct?

2:31:48PM A. The two are not exactly the same, you're right.

2:31:51PM Q. So --

2:31:51PM A. I am not sure what you mean by "switching" in that
context.

2:31:55PM Q. Well, that one was an effort to be a quote from your
testimony, Professor.

2:31:59PM A. That's fine. I'm just trying to be clear what you mean.

2:32:03PM Q. Very good. I would like you to be clear. I'll ask you to
take a look at paragraph 39 --

2:32:08PM A. Okay.

2:32:08PM Q. -- of your direct testimony, and it's four lines from the
bottom of that paragraph.

2:32:26PM A. Right. So I just wanted to be clear that we are talking
about actual switching devices, and, yes, that is what this
says.

2:32:29PM Q. Very good.

2:32:34PM And for there to be actual multihoming under the

2:32:38PM literature, there needs to be real use on both devices or
2:32:41PM multiple devices, right? Ownership or access is not enough,
2:32:45PM correct?

A. Multihoming implies that people are using both devices.

Q. Turn to one last topic, Professor.

You've defined a geographic market that involves U.S. consumers on the one hand and developers globally on the other; is that right?

A. That's correct.

Q. And one basis on which you reach that conclusion is, again, your understanding of the law and what the U.S. antitrust laws are intended to achieve; is that correct?

A. While I was at the FTC, the criteria that we used was --

Q. Apologies.

A. -- consumer welfare in the U.S., yes.

Q. You asked -- you reached that conclusion, in part, based on your understanding of the law; is that correct?

A. I would say based on my experience at the FTC.

Q. And at the FTC, you served as an economist, correct?

A. Yes, yes.

Q. Okay.

A. I am not a lawyer.

Q. Very good.

And you also formed your view on the geographic market definition, in part, on the basis that developers have to

2:34:01PM compete for U.S. consumers on U.S. storefronts; is that right?

2:34:07PM **A.** Yes.

2:34:08PM **Q.** And U.S. consumers are unable to go to storefronts in other countries, as you understand it, or it is difficult for them to do so; is that correct?

2:34:12PM **A.** That's correct.

2:34:15PM **Q.** But you didn't take account at all of direct distribution in defining your geographic market; am I right?

2:34:17PM **A.** Direct distribution by developers.

2:34:21PM **Q.** Correct.

2:34:25PM **A.** I'm not sure I fully follow, so if you could help me with what you mean by --

2:34:29PM **Q.** Well --

2:34:33PM **A.** -- taking that -- I'm not understanding.

2:34:38PM **Q.** Sure. I'm a U.S. consumer, and I can go on my PC now and download anything I want from a developer overseas, right?

2:34:42PM **A.** Perhaps. I've never tried, so I don't know.

2:34:47PM **Q.** Well, you understand there's direct distribution on the PC, correct?

2:35:00PM **A.** Yes.

2:35:04PM **Q.** And it's not limited to -- by national boundaries, right?

2:35:12PM **A.** I actually don't know about that.

2:35:14PM **Q.** Right. You don't know one way or the other.

2:35:17PM **A.** Right.

2:35:17PM **Q.** And so you did not take that into account --

2:35:20PM

A. That's correct.

2:35:20PM

Q. -- in reaching your geographic market definition.

2:35:27PM

A. That's correct.

2:35:27PM

Q. Very good.

2:35:27PM

MR. BORNSTEIN: Nothing else. Thank you for your time, Professor.

2:35:30PM

THE WITNESS: Thank you.

2:35:30PM

THE COURT: Redirect.

2:35:33PM

MS. DUNN: No redirect, Your Honor.

2:35:34PM

THE COURT: Okay. Professor, you may step down.

2:35:35PM

You're excused. Thank you.

2:35:36PM

Next witness. Who do we have next?

2:35:59PM

MR. DOREN: Professor Lorin Hitt, Your Honor.

2:35:59PM

THE COURT: We are waiting for Professor Hitt. Thank you, Mr. Doren.

2:36:15PM

While we are waiting, having reviewed once your conclusions of law, your briefing, your hundreds and thousands of pages, I take it there is no definitive authority as to the precise framework or the precise mechanism by which the Court defines the market other than considerations. That is why you all are spending so much time on this.

2:36:42PM

Kind of like -- it reminds me of qualified immunity. Lots of things that we need to think about. One side says it is usually black, the other side says it is white; typically, the answer is somewhere in the gray, for an analogy.

2:36:48PM

LAFONTAINE - CROSS / BORNSTEIN

2:36:59PM But it's -- I haven't seen any Ninth Circuit or Supreme Court authority that says this is the precise way in which you define the market, and that's why you all are spending so much time on this.

2:37:13PM Am I right?

2:37:14PM **MR. BORNSTEIN:** Your Honor, I -- this is the first time I'm speaking up here with my mask on. Sorry.

2:37:19PM I actually think it is not quite so complicated. I don't have our papers in front of me right now, having just gone through two examinations, but I do believe there is a pretty well-trodden framework for defining the market --

2:37:32PM **THE DEFENDANT:** There are certainly considerations, but there -- I haven't seen anything, for instance, that says you must look at it from the precise point of view of the plaintiff or you must look at it from the precise point of view of the product or you must look at it from the precise point of view of competition. There are lots of different considerations that all go into trying to figure out what the relevant market is. If it was clear-cut, you would agree, but you don't.

2:38:06PM **MS. DUNN:** Your Honor, in your PI order --

2:38:10PM **THE CLERK:** Let me turn your mic on. I'm sorry.

2:38:20PM **THE COURT:** Go ahead, Mr. Bornstein. You have the mic.

2:38:23PM **MR. BORNSTEIN:** Oh, I am sorry, Your Honor.

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2:38:24PM I actually do think it is more clear-cut than perhaps it
2:38:28PM appears based on the back-and-forth between the parties. It
2:38:33PM is not always agreed between the parties on how clear-cut
2:38:36PM things are, but my understanding --
2:38:38PM **THE COURT:** What is your best case?
2:38:39PM **MR. BORNSTEIN:** I'm sorry?
2:38:39PM **THE COURT:** What is the case upon which you rely?
2:38:42PM **MR. BORNSTEIN:** Your Honor, as I said, I do not have
2:38:43PM a case right now that I can give you at my fingertips, but I
2:38:47PM can certainly get you one in the next five minutes when I just
2:38:50PM go consult with my colleagues.
2:38:50PM **THE COURT:** So you think there is one case?
2:38:52PM **MR. BORNSTEIN:** I do believe there is a pretty
2:38:53PM well-trodden framework. A lot of times what people do is they
2:38:53PM refer to the horizontal merger guidelines from the DOJ and FTC
2:39:00PM that Professor Schmalensee referenced earlier today.
2:39:02PM But the standard framework is to look to see what are the
2:39:07PM substitutes that are available to constrain the conduct at
2:39:12PM issue by the defendant in the case, which requires looking to
2:39:17PM see -- which it requires looking to see what the options are
2:39:26PM to constrain the conduct.
2:39:27PM Ms. Forrest is passing me a note about Brown Shoe, which
2:39:31PM is an old case --
2:39:32PM **THE COURT:** Old, old. Very old.
2:39:33PM **MR. BORNSTEIN:** An oldie but a goody. But the

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2:39:36PM framework is very much, in our view, starting with what is the conduct at issue in assessing how you can decide what other activity constrains the defendant from engaging in that conduct.

2:39:48PM **THE COURT:** Right. But if there was a flower market down the street that didn't have any presence on an app, then, obviously, that -- if they came in arguing some kind of antitrust conduct, one would wonder what they were doing here, given that they don't have any presence on the app. So --

2:40:09PM **MR. BORNSTEIN:** That is true, Your Honor, but that's an antitrust injury question. That is a separate question from market definition. In order for a plaintiff to bring a case, they need to have both Constitutional Article III standing, of course, but also to have antitrust injury.

2:40:20PM I don't think there is any dispute about antitrust injury here. Epic has certainly been harmed, but that is not a market definition question. And that was the point of one of my questions to Professor Schmalensee.

2:40:35PM **THE CLERK:** So can you -- I'm sorry, I'm having a problem with this X panel.

2:40:41PM **THE COURT:** All right. Can you go to this --

2:40:41PM **THE CLERK:** You can go to the table or something.

2:40:41PM **THE COURT:** He won't -- Ms. Dunn, he won't bite. Go to that mic.

2:40:43PM **MR. BORNSTEIN:** Join me.

LAFONTAINE - CROSS / BORNSTEIN

2:40:44PM

MS. DUNN: Gary and I will sit together.

2:40:44PM

Mr. Bornstein and I will share the space.

2:40:47PM

So in your PI order, Your Honor, you do cite a case -- and

2:40:53PM

I will look that up -- where the focus is supposed to be on

2:40:56PM

the commercial realities. And so the commercial realities --

2:40:59PM

we think you got that right in the PI order -- they relate to

2:41:05PM

market definition and, frankly, to relevant market.

2:41:08PM

So in order to figure out what is the relevant market, you

2:41:13PM

look at, you know, the issues at hand. And I think that is,

2:41:17PM

in part, what Dr. Lafontaine was talking about, which is we

2:41:22PM

need to figure out what is the product. So --

2:41:25PM

THE COURT: Do you have a case?

2:41:26PM

MS. DUNN: We are looking it up.

2:41:30PM

THE COURT: I've got old Brown Shoe --

2:41:31PM

MS. DUNN: Yeah.

2:41:31PM

THE COURT: -- and as we all know, just because it's

2:41:35PM

old doesn't make it any less the law, so we know that. But

2:41:41PM

Hicks, what is it that you're -- okay.

2:41:46PM

MS. DUNN: Yeah, so --

2:41:46PM

THE COURT: You know, we can keep going. I was just

2:41:47PM

trying to kill time since we were waiting.

2:41:51PM

Let's see. Professor Hitt, is it, or Mr. Hitt?

2:42:08PM

THE REPORTER: Can you tell me who you are?

2:42:08PM

MS. RICHMAN: Good afternoon, Your Honor. Cynthia

2:42:23PM

Richman for Apple.

HITT - DIRECT / RICHMAN

2:42:23PM

Apple calls Professor Hitt to the stand.

2:42:23PM

THE COURT: And if you'll remain standing.

2:43:19PM

(**LORIN MOULTRIE HITT**, called as a witness for the Defendant, having been duly sworn, testified as follows:)

2:42:58PM

THE WITNESS: I do.

2:43:00PM

THE CLERK: Please be seated. Make sure the mic is adjusted under the shield. All right?

2:43:05PM

Please state your full name and spell your last name.

2:43:08PM

THE WITNESS: My name is Lorin Moultrie Hitt. Last name spelled H-I-T-T.

2:43:16PM

THE COURT: Good afternoon, sir.

2:43:18PM

THE WITNESS: Good afternoon.

2:43:18PM

THE COURT: You may proceed, Ms. Richman.

2:43:21PM

MS. RICHMAN: Thank you, Your Honor.

2:43:22PM

Good afternoon, Professor Hitt.

2:43:25PM

Before we get started, I would like to approach the witness with a bottle of water and a binder with his written Direct testimony in it.

2:43:34PM

THE COURT: That's fine.

2:44:00PM

DIRECT EXAMINATION

2:44:02PM

BY MS. RICHMAN:

2:44:02PM

Q. Well, Professor Hitt, your ears must have been burning this morning, there's been a lot of discussion about you, but can you state your name for the record, please?

2:44:05PM

A. Hi. My name is Lorin Moultrie Hitt.

HITT - DIRECT / RICHMAN

2:44:12PM

Q. And, Professor Hitt, where are you currently employed?

2:44:14PM

A. I'm employed at the University of Pennsylvania, Wharton School which is the business School that's connected with the University of Pennsylvania.

2:44:18PM

THE COURT: You'll have to slow down, Mr. Hitt.

2:44:22PM

THE WITNESS: Will do.

2:44:22PM

THE COURT: Go ahead.

2:44:22PM

BY MS. RICHMAN:

2:44:22PM

Q. Let me repeat the question.

2:44:37PM

Professor Hitt, what's your title at Wharton?

2:44:39PM

A. It's the Zhang Jindong Professor of Operations, Information, and Decisions.

2:44:43PM

Q. And can you please summarize your formal education for the Court?

2:44:47PM

A. Sure.

2:44:47PM

So I got my undergraduate and master's degree in electrical engineering from Brown University. Worked for a few years, then went back and got my Ph.D. in management from the MIT Sloan School of Management.

2:45:00PM

My area of specialty was information technology economics and applied econometrics and my dissertation title was "Economics of Information Technology and Organization."

2:45:11PM

Q. And was your dissertation published?

2:45:14PM

A. Yes. It was the sort of classic economist three SA Dissertation. Two were published in top tier economics

2:45:16PM

HITT - DIRECT / RICHMAN

2:45:16PM journals. One in the top tier IS Specialty -- Information Systems Specialty Journal.

2:45:26PM Q. What is the focus of your current research, Professor Hitt?

2:45:29PM A. So, generally, economics of information technology and industries affected by information technology. I've done a lot of work recently and in the past on the economics of electronic commerce and internet-enabled commerce more generally.

2:45:43PM Q. Have you done any research on app-related economic issues?

2:45:47PM A. Yes. I've done work on the economics of software, in particular pricing of digital goods. I've worked in the area of switching costs. I've worked in the area of recommended systems that are sort of interesting to electronic commerce to the public (phonetic) --

2:46:04PM MS. RICHMAN: Are you having trouble?

2:46:04PM COURT REPORTER: I am.

2:46:04PM THE WITNESS: I'll slow down.

2:46:04PM THE COURT: And I think we are going to have to fix this mic issue. If you push it down --

2:46:14PM THE CLERK: It bends on the end.

2:46:16PM THE WITNESS: Is that better?

2:46:20PM THE COURT: I think that's better.

2:46:23PM BY MS. RICHMAN:

2:46:23PM Q. Professor Hitt, it's okay to brag now.

HITT - DIRECT / RICHMAN

2:46:27PM Have you received any teaching awards at the University of Pennsylvania?

2:46:31PM **A.** Yes. I'm a 12-time winner of the Wharton Excellence in Teaching Award, which is annual. I also won the Wharton wide Hauck Award and the University wide Lindback Award, which are the highest teaching awards in the Wharton School and the University of Pennsylvania respectively.

2:46:48PM **Q.** Have you previously presented testimony in a case before a federal or state court?

2:46:54PM **A.** Yes.

2:46:55PM **Q.** And what subjects did your prior testimony cover?

2:46:59PM **A.** The -- so one of the cases focused specifically on smartphones. And in particular, pricing and the economic value of the smartphone features. I've also done work related to business practices in the information technology industry more generally.

2:47:02PM **Q.** And when you testified previously, were you accepted by the courts as an economic expert on those subjects in those cases?

2:47:13PM **A.** Yes, I was.

2:47:22PM **MS. RICHMAN:** Your Honor, I would like to tender Professor Hitt as an expert in information technology, economics, and applied econometrics?

2:47:32PM **THE COURT:** Any objection?

2:47:34PM **MR. EVEN:** No objection.

2:47:36PM

THE COURT: He's admitted as such.

2:47:38PM

MS. RICHMAN: Thank you.

2:47:40PM

BY MS. RICHMAN:

2:47:40PM

Q. Professor Hitt, did you analyze the competitive effects of the conduct being challenged by Epic in this case?

2:47:48PM

A. Yes, I did.

2:47:48PM

Q. What are the indicia of competition that economists typically look at in analyzing whether conduct has pro or anticompetitive effects?

2:48:00PM

A. So three common ways of looking at the outcome of competitive conduct is to evaluate output, whether the market is growing, shrinking, how much is it expanding, prices, what are people paying, and then innovation and quality, is the product improving over time.

2:48:16PM

And, in general, in a competitive market, you expect output to expand, prices to be steady or falling, and quality to improve. And with anticompetitive conduct, you expect the opposite.

2:48:26PM

Q. And broadly speaking, what did you conclude about the competitive effects of the conduct challenged by Epic in this case?

2:48:35PM

A. There's no evidence to suggest based on those metrics that Apple engaged in anticompetitive conduct.

2:48:42PM

Q. Professor Hitt, you understand that Epic and Apple are offering different product definitions to the Court; is that

2:48:45PM

2:48:48PM

correct?

2:48:48PM

A. That's correct.

2:48:51PM

Q. And do your conclusions on competitive effects turn on the relevant market that the Court adopts in this case?

2:49:01PM

A. No. Regardless of whether you use a game transactions market or an all apps market, those indexes of market outcomes are generally consistent. The numbers are different but you still see the same general trends.

2:49:15PM

Q. Okay. Let's talk about how you arrived at that conclusion and let's start by talking about data.

2:49:21PM

Can you describe the type of data you relied on in conducting your analysis?

2:49:27PM

A. Sure.

2:49:27PM

So the primary data source for one of the calculations on output was a dataset of Apple transactions. Is literally every transaction that occurred on the Apple store for downloads in-app purchases from the time the Apple Store opened through the end of 2019? That has about 60 billion transactions in it.

2:49:48PM

In addition, I looked at market research service data as well as public information. It gives you information about the overall market size as well as prices paid. And for some of the analyses in my report, I also looked at transactional data provided by Epic that provided monthly data on Fortnite transactions by user for several years at the monthly level.

2:49:52PM

2:49:55PM

2:49:58PM

2:50:02PM

2:50:07PM

HITT - DIRECT / RICHMAN

- 2:50:14PM That's about 2.8 billion monthly observations.
- 2:50:17PM Q. And do you know whether Dr. Evans had access to the data?
- 2:50:24PM A. So I believe -- I believe he did, yes.
- 2:50:27PM Q. And do you know whether Dr. Evans analyzed these billions of observations from the App Store to reach opinions on competitive effects?
- 2:50:31PM A. Dr. Evans didn't really do anything on competitive effects with the Apple transactions data. He didn't look at output or quality at all using those data.
- 2:50:35PM
- 2:50:36PM
- 2:50:41PM
- 2:50:44PM
- 2:50:47PM
- 2:50:50PM
- 2:50:53PM
- 2:50:56PM
- 2:50:59PM
- 2:50:59PM
- 2:51:04PM
- 2:51:11PM
- 2:51:17PM
- 2:51:19PM
- 2:51:24PM
- 2:51:28PM
- 2:51:33PM
- 2:51:36PM
- 2:51:40PM
- 2:51:42PM
- He also did not use the full *Fortnite* data for any of his analysis. He instead used a 1 percent sample -- less than 1 percent sample which is different than the data I used, which has all of *Fortnite* spending.
- Q. Thank you.
- If we can go to slide 4. Let's talk about output first.
- Why is output an important measure of competitive effects?
- A. So it's a key measure of the amount of activity occurring within a market. And in particular, a hypothesis is that monopolies will raise prices and thereby restrict output. So expanding output is an indication that would suggest that there is not anticompetitive behavior when compared against an inappropriate benchmark.
- Q. Are your findings summarized here on slide 4?
- A. Yes, they are.
- Q. How did you go about measuring output?

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2:51:46PM

A. So there's two ways you can measure output in this market. One, you can look at the number of transactions. This is a two-sided transaction platform. So a natural measure of output would be the number of transactions that occur. So that's one metric.

2:52:00PM

A second metric would be revenue, which is how much -- how much actual -- the volume of commerce that's being conducted which directly relates to the value that consumers and developers are getting for performing these transactions.

2:52:15PM

Q. Did you use zero price transactions in measuring output?

2:52:19PM

A. Yes. It's very common in two-sided markets for one side or the other to participate in transactions but not pay a price for that.

2:52:30PM

This is an important source of value created by the App Store and a critical component of output. So it's important that when you're evaluating output, you incorporate free transactions because that's a key part of what's being delivered.

2:52:45PM

Q. Let's go through these numbers one by one beginning with game transactions.

2:52:49PM

First, how did you identify games in the Apple transaction data?

2:52:55PM

A. So, fortunately, developers self-identify. So I was able to identify game transactions because developers self-identify their products as games.

HITT - DIRECT / RICHMAN

2:53:08PM

Q. Can we have slide 5, please.

2:53:10PM

And is your analysis of -- your conclusions about output of game transactions reflected in this slide?

2:53:19PM

A. Yes, it is.

2:53:19PM

Q. And what does it show?

2:53:21PM

A. So there's two panels on the side. The left-hand panel has transactions. The right-hand panel has revenue. Across the bottom is the passage of time. The vertical axis is the measure of output.

2:53:35PM

So if you look -- this is based on 60 billion data -- 60 billion transaction dataset reduced down to focus solely on game transactions. What you see in the left panel is that the number of game transactions has been increasing over time. And if you do a calculation over the span of this data, you'll find that game transactions have expanded 1200 percent. That's 12 times from the inception to current times. And that's generally an upward trend.

2:53:52PM

If you look at revenue, revenue has expanded even more at 2600 percent, and it's got a very steady increasing amount from the time the App Store started through the end of the period.

2:54:11PM

The window for which that calculation is done slightly different so it can match different dataset. This is from July 2008 to September 2019.

2:54:23PM

Q. As an economist, what conclusions do you draw from these

HITT - DIRECT / RICHMAN

2:54:26PM numbers?

2:54:27PM **A.** So output is expanding rapidly in this market for game transactions.

2:54:31PM Just a clarification, the 2600 percent is from 2010 to 2018.

2:54:38PM **Q.** And in your experience, are these large increases in the amount of output?

2:54:44PM **A.** Yes. These are enormous changes.

2:54:47PM So if you think -- you know, compare the revenue figure. A natural comparison would be, for example, the growth in the U.S. economy. Over 2010 to 2018, the U.S. economy grew about 50 percent. So we're talking about a 50 plus times difference in the rate of growth. So this is a very, very rapid growth.

2:55:01PM **Q.** Just make sure we understand.

2:55:08PM These measures just look at output on the App Store; is that correct?

2:55:13PM **A.** This is just the App Store.

2:55:14PM **Q.** As an economist, is it important to look at market-wide changes in output?

2:55:19PM **A.** Yes. Anticompetitive conduct can affect the market as a whole. In addition, it provides a relevant benchmark to evaluate these changes relative to the closest analog.

2:55:22PM **Q.** Did you examine output for digital game transactions more broadly?

2:55:27PM **A.** I did.

2:55:36PM

Q. Can we have slide 6, please.

2:55:38PM

Is that what is reflected on the slide?

2:55:41PM

A. Yes, it is.

2:55:43PM

Q. And can you describe this slide for the Court, please?

2:55:46PM

A. Sure.

2:55:47PM

So this is based on market research data that estimates the total size of the digital games transactions market.

2:55:53PM

The data spanned 2010 to 2018. That's the same period which I calculated my 2600 percent number. You see a steady increase in size of this market where the total growth over the period is 448 percent over these nine years.

2:56:02PM

Q. And how does that level of growth compare to the level of growth for the App Store?

2:56:10PM

A. That's pretty fast. But it's nowhere near the speed at which the App Store output has been expanding, which is 2600 percent, about six -- the App Store has been growing about six times as fast as the overall market for game transactions.

2:56:18PM

Q. So I would like to shift from digital game transactions and talk about all iOS transactions.

2:56:22PM

Did you analyze changes in output in Dr. Evans' alleged market?

2:56:37PM

A. Yes.

2:56:40PM

Q. And can we have slide 7, please?

2:56:47PM

And are your conclusions reflected on this slide?

HITT - DIRECT / RICHMAN

2:56:56PM

A. Yes, they are. This is essentially the same analysis I showed a couple of slides back.

2:56:59PM

Transactions on the vertical axis, passage of time on the horizontal axis, transaction accounts on the left, developer revenue on the right. Again, you see by either metric, the markets are expanding rapidly. 500 percent growth in transactions in all app transactions and 3700 percent in revenue.

2:57:01PM

Q. Professor, have you been following the testimony in this case?

2:57:05PM

A. Yes.

2:57:08PM

Q. And did you hear Dr. Evans' testimony that Apple obtained significant market power in the iOS app distribution market in 2010?

2:57:13PM

A. Yes.

2:57:17PM

Q. And do you have an opinion as to whether Dr. Evans tested that claim?

2:57:21PM

A. I don't believe he tested that claim, no.

2:57:25PM

Q. Have you attempted to test that claim?

2:57:29PM

A. Yes. I have examined data that's related to that claim.

2:57:36PM

Q. Can we have slide 8, please.

2:57:40PM

And does this slide reflect your analysis of Dr. Evan's claim?

2:58:00PM

A. I think we are one slide ahead.

2:58:04PM

Q. Can you flip back?

HITT - DIRECT / RICHMAN

2:58:09PM

A. There we go, perfect.

2:58:10PM

So this is just the same chart you saw before only zoomed into a period that is two years before and two years after the end of 2010. Dr. Evans alleges that in 2010, Apple obtained market power. That's essentially right in the center of this chart.

2:58:26PM

As you can see, on the left hand transactions were growing before. They continue to grow afterwards. On the right, you see revenue growing before. It continues to grow afterwards. There's no evidence of any kind of change or structural break at the time they allegedly attained market power.

2:58:44PM

Q. So we've gone through several measures of change in output by number of transactions.

2:58:51PM

Did you examine other metrics of output other than the number of transactions?

2:58:55PM

A. Yes.

2:58:59PM

Q. And did you look at changes in the number of games on the App Store over time?

2:59:07PM

A. Yes. Another form of that output is simply the expansion of product variety.

2:59:10PM

And what you find is, is that the App Store started at about 131 apps. And today -- game apps -- and there's about 300,000 available today.

2:59:20PM

Q. Did Dr. Evans offer any analysis showing any restriction of output of game transactions or iOS app transactions?

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- 2:59:28PM **A.** I don't believe he did any analysis on output restriction.
- 2:59:32PM **Q.** That's output. Let's talk about pricing.
- 2:59:35PM You also looked at pricing; is that right?
- 2:59:37PM **A.** That's correct.
- 2:59:38PM **Q.** And did you see any evidence that Apple charges a super competitive commission?
- 2:59:44PM **A.** No. They are generally at market price and the price has been declining over time.
- 2:59:48PM **Q.** Can I have slide 9, please.
- 2:59:51PM What did you assess in order to study the effect of Apple's conduct on prices?
- 2:59:56PM **A.** So you can look at the commission rates that are stated -- the stated commission rate that Apple has by their policies.
- 3:00:01PM You can look at the comparable commission rates for the competitors. You can look at what Epic paid to its -- to the folks who do game transactions for Fortnite and other Epic Games as well.
- 3:00:08PM And then you can do a calculation of what I'm calling the effective commission rate, which is what you get when you consider transactions that are both free and paid and construct a composite of what the effective rate is paid averaging those two together.
- 3:00:19PM **THE COURT:** Did you include the amount of support that they provide? That is, I think for the \$99, they get two -- developers only receive two technical services as

HITT - DIRECT / RICHMAN

3:00:49PM

compared to others?

3:00:51PM

THE WITNESS: So I didn't compare the developer's

3:00:54PM

support side in that particular way so I'm mostly focusing

3:00:58PM

here on sort of the top line prices that are being charged.

3:01:01PM

I do have a number of other analyses and all the things

3:01:05PM

Apple has done to improve the App Store. I don't know if the

3:01:10PM

services to developers is factored into that, but there's lots

3:01:13PM

of other things that Apple has done to improve the quality of

3:01:15PM

the relationship with developers and to make new kind of games

3:01:19PM

available.

3:01:20PM

THE COURT: Proceed.

3:01:21PM

THE WITNESS: Did that answer your question?

3:01:23PM

THE COURT: Proceed.

3:01:23PM

MS. RICHMAN: Thank you, Your Honor.

3:01:25PM

BY MS. RICHMAN:

3:01:26PM

Q. Professor Hitt, has Apple reduced its commission over

3:01:30PM

time?

3:01:31PM

A. Generally, yes.

3:01:32PM

Q. Can we have slide 10, please?

3:01:33PM

Can you describe your findings as reflected in this slide?

3:01:40PM

A. Sure.

3:01:41PM

So when the App Store was started, the commission rate for
downloads was 30 percent. When they added in-app payments,

3:01:44PM

the commission for that has been 30 percent, and those numbers

3:01:51PM

have stayed constant over time, generally.

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3:01:56PM However, there have been a number of specific app programs
3:01:59PM that have reduced those commissions for certain kinds of
3:02:02PM transactions. In 2016, Apple reduced the commission rate for
3:02:07PM subscription renewals after one year to 15 percent.

3:02:10PM At about the same time, they introduced what's called the
3:02:13PM video partner program where certain kinds of providers of
3:02:17PM premium content, think Hulu maybe, pay a 15 percent commission
3:02:23PM on transactions performed through the App Store for that
3:02:30PM content.

3:02:30PM Then more recently, Apple introduced the small business
3:02:32PM developers program which reduces the commissions on all
3:02:34PM transactions to -- all paid transactions to 15 percent for any
3:02:38PM developer earning less than a million dollars a year on the
3:02:42PM App Store.

3:02:43PM **THE COURT:** Did you see any documentation which
3:02:45PM indicated that the 2021 change was contemplated prior to the
3:02:50PM filing of this lawsuit?

3:02:53PM **THE WITNESS:** I have not seen documents one way or
3:02:55PM the other on that. I understand that they have explained that
3:03:01PM they wanted to support innovation, and that was one of the
3:03:04PM reasons, I don't know all the reasons that might be relevant
3:03:06PM there.

3:03:06PM **THE COURT:** You saw nothing that suggested that this
3:03:09PM change was contemplated prior to August of 2020.

3:03:15PM **THE WITNESS:** I don't recall -- to answer your

HITT - DIRECT / RICHMAN

3:03:17PM earlier question directly, I don't recall anything
3:03:20PM specifically saying they were anticipating a lawsuit there. I
3:03:23PM don't know if those documents exist or not, but I haven't seen
3:03:26PM them.

3:03:27PM **THE COURT:** Proceed.

3:03:27PM **MS. RICHMAN:** Thank you, Your Honor.

3:03:28PM **BY MS. RICHMAN:**

3:03:29PM **Q.** Can we have slide 11, please? Actually this is the one.
3:03:36PM Thank you.

3:03:38PM Professor Hitt, you said you look at Apple's commission
3:03:40PM rate relative to other transaction platforms. Is that what
3:03:46PM you present in this slide?

3:03:48PM **A.** Yes. This is a very simple presentation of different
3:03:51PM transaction platforms that are available. It's not all of
3:03:54PM them but I think there's -- I identified about 14 including
3:03:58PM the App Store, but here's a selection.

3:04:00PM And the height of the bar is simply what the commission
3:04:04PM rate is for digital transactions. And what you see is the App
3:04:08PM Store charges 30 percent. Google Play charges 30 percent.
3:04:11PM Samsung Galaxy Store, Microsoft Store, PlayStation Store,
3:04:17PM Nintendo eShop, and Steam, which is the largest transaction
3:04:21PM platform for PCs, all charge 30 percent.

3:04:25PM The Epic Games Store, as we heard, has a 12 percent
3:04:28PM commission. But the 30 percent compares very favorably to
3:04:33PM what used to be traditional retail where you'd get commission

HITT - DIRECT / RICHMAN

- 3:04:37PM rates that could exceed 50 percent.
- 3:04:40PM Q. Now we have a slide that's related to my next question, but I ask that it not be put up because it contains confidential information.
- 3:04:48PM
3:04:49PM MS. RICHMAN: But slide 12 in your binder, Your Honor, is the one to reference although I expect this is not going to be news to you.
- 3:04:54PM
3:04:58PM BY MS. RICHMAN:
- 3:04:59PM Q. Professor Hitt, does Epic pay a 30-percent commission to other game transaction platforms?
- 3:05:05PM
3:05:07PM A. Yes. You've heard some discussion about Epic seeking discounts and so forth. But for the most part, Epic pays 30 percent on the transaction platforms where *Fortnite* is distributed. There are some exceptions, but in general, it's 30 percent.
- 3:05:13PM
3:05:16PM
3:05:21PM
3:05:22PM Q. Now you mentioned earlier that you were listening to the trial testimony in this case, correct?
- 3:05:25PM
3:05:28PM A. Yes.
- 3:05:29PM
3:05:35PM Q. And did you hear Ms. Wright from Microsoft's testimony last week that Microsoft does not earn a profit on the sale of Xbox devices and only generates profits from commissions on Xbox games?
- 3:05:39PM
3:05:45PM A. Yes, I did.
- 3:05:47PM Q. And does that impact your --
- 3:05:51PM MR. EVEN: Objection, Your Honor.

HITT - DIRECT / RICHMAN

3:05:52PM

THE COURT: What's the objection?

3:05:56PM

MR. EVEN: I believe it is outside the scope, Your Honor.

3:05:58PM

THE COURT: What part of his report covers this, Ms. Richman?

3:06:02PM

MS. RICHMAN: I believe he talks about it in paragraph 164 of his written Direct testimony.

3:06:04PM

THE COURT: His written Direct only -- Okay. Hold on. 164.

3:06:11PM

MS. RICHMAN: Your Honor, I'm just pulling it up myself. Just generally reporting on the commission rates. It doesn't go to the testimony that Ms. Wright supplied last week, but as an expert in this case, Professor Hitt has been listening to the testimony and is prepared to offer opinions about the economic implications on the testimony given to date.

3:06:16PM

THE COURT: I believe that I allowed -- I'm trying to think -- Professor Athey to supplement. So I will allow you to answer that question.

3:06:22PM

THE WITNESS: Okay.

3:06:32PM

BY MS. RICHMAN:

3:06:36PM

Q. Do you need me to repeat it, Professor Hitt?

3:06:42PM

A. Yes, please.

3:06:47PM

Q. I was asking about Ms. Wright's testimony last week and whether the fact that -- or not, depending on as it may be,

3:06:53PM

HITT - DIRECT / RICHMAN

3:07:38PM Microsoft does not earn a profit on the sale of Xbox devices

3:07:43PM changes your opinion on whether Apple's offering a competitive

3:07:48PM commission rate on digital game transactions.

3:07:52PM **A.** No. For at least three reasons.

3:07:54PM One, it's as a matter of economics the market price is set

3:08:00PM by supply and demand. A high cost producer does not

3:08:05PM necessarily have any ability to charge a higher price because

3:08:08PM they are higher cost. That doesn't follow from normal

3:08:12PM economic reasoning. You can argue for it, but ultimately the

3:08:15PM market price depends on the entire market, not just a

3:08:19PM particular producer.

3:08:21PM Second, there's evidence in the record that normally all

3:08:23PM consoles do not necessarily lose money. I won't give the

3:08:27PM figure because I understand that's sealed.

3:08:28PM And then, finally, it's inconsistent with sort of

3:08:32PM observational data. There are platforms that subsidize

3:08:35PM hardwares; those charge 30 percent. There are platforms that

3:08:40PM don't subsidize hardware; those also charge 30 percent. There

3:08:42PM are platforms that don't have any hardware, and they also

3:08:45PM charge 30 percent. At least the empirical evidence is

3:08:49PM consistent with there being a 30 percent market price

3:08:52PM regardless.

3:08:53PM **Q.** Can you provide an example of a transaction platform that

3:08:58PM does not sell devices and charges a 30-percent commission?

3:09:02PM **A.** So, in general, Steam does not sell PCs, although there

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3:09:07PM

are some devices that they do sell elsewhere.

3:09:10PM

Q. Do developers always pay a commission to Apple when they make transactions through the App Store?

3:09:17PM

A. No. The commission we've been discussing applies very specifically to downloads, paid downloads and paid in-app digital transactions. All the other ways in which developers can earn revenue are not subject to these commissions.

3:09:35PM

Q. And what are the other ways that developers can monetize their apps without paying a commission to Apple?

3:09:43PM

A. So developers can advertise in the app; many do. That's not subject to any commissions.

3:09:50PM

Developers have the ability to sell digital content outside the app for the use -- for use inside the app. Apple doesn't place any restrictions on doing that, including subscriptions, which you can sell outside the app and use in the app.

3:10:03PM

There's other forms of monetization. You can do promotional partnerships. You can do physical events, sell stuff. That's also not subject to it, but I think those two are probably the big choices.

3:10:19PM

Q. And did you measure, quantify the degree to which developers actually pay Apple commission on App Store transactions?

3:10:29PM

A. Yes.

3:10:30PM

Q. Can we have 513, please? And the results of that analysis

HITT - DIRECT / RICHMAN

3:10:36PM

shown on this slide?

3:10:38PM

A. Yes. This is one of the analyses I did. And this focuses specifically on the monetization mechanisms that developers are using for particular -- particular apps that are available on the App Store.

3:10:41PM

Q. This data was for a single year, fiscal year 2019; that's what it says here, correct?

3:10:45PM

A. That's correct.

3:10:50PM

Q. And were these numbers in prior years similar to what we see here?

3:10:55PM

A. Yes. I can take you through these just quickly to take you through the numbers.

3:11:00PM

On the App Store in 2019, 91 percent of games are free to download. So they wouldn't incur a download commission.

3:11:05PM

What I think is really interesting is 76 percent of the games on the App Store are totally free. And that is the sense they don't have the paid download and they don't have any digital in-app payments either. So these games are distributed through the App Store. No commissions generated from Apple -- generated to Apple.

3:11:11PM

The comparable number for regular apps is 83 percent. And these things -- this has shifted over time as your question would indicate.

3:11:16PM

Q. Can you explain how?

3:11:21PM

And can we have slide 14 as well?

HITT - DIRECT / RICHMAN

3:11:57PM **A.** So this slide is, again, passage of time. Starting at the beginning of the App Store through the end of fourth quarter 2019 when the Apple transaction data ends.

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3:13:02PM
3:13:07PM
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3:13:15PM

It plots three things: It's the proportion of App Store games by different monetization methods. The red line is the number of paid-to-download apps. In the early days, nearly all apps were paid to download. That's something like 80 percent. These -- again, this is focusing on games. So nearly all games were paid to download. That's at 80 percent. That's dropped to less than 10 percent today.

Q. Professor Hitt, is that the red line here?

A. That is the red line.

Q. Okay.

A. Then two other lines on this chart, that 76 percent number I talked about earlier corresponds to the free to download game without in-app purchase. That has been arising over time. And then again -- that's the green line. Then the blue line is the -- are games that are free to download, but monetize at least from the App Store's perspective through in-app purchase, and that has been rising over time as a mechanism that developers are choosing.

Q. Thank you.

THE COURT: Excuse me. Ms. Richman, two minutes.

MS. RICHMAN: Thank you, Your Honor.

3:13:16PM

BY MS. RICHMAN:

3:13:16PM

Q. Just try to get through one more slide.

3:13:18PM

Professor Hitt, did you look at Apple's average commission rate on initial game downloads over time? So I guess what's reflected in the redline here?

3:13:22PM

A. Yes.

3:13:26PM

Q. Can we have slide 15, please?

3:13:28PM

A. Yes, I did.

3:13:32PM

Q. And is that what is depicted on the slide?

3:13:35PM

A. Yes. So what is depicted on the slide is, again, passage of time, same period we have been talking about before.

3:13:42PM

Vertical axis is the average -- in effect, what I am calling the average commission rate. What that commission rate is, is if a commission is paid a download, there's a positive commission, I include that number. That's typically 30 percent. If there is a zero price download, if it is free, that is averaged in as a zero.

3:13:55PM

This is the number you get when you average overall transactions. As you can see, it was a relatively low number to start on average and has been declining over time. And for the obvious reason that, as we saw earlier, the percentage of initial game downloads that are paid has also been falling over time, which has reduced the effective commission rate.

3:14:02PM

The topline rate that people pay is constant, but the effective rate has declined as developers have moved away from

3:14:05PM

3:14:33PM paid downloads.

3:14:35PM **MS. RICHMAN:** Your Honor, would this be a good stopping point for you?

3:14:38PM **THE COURT:** It would be.

3:14:40PM **MR. BORNSTEIN:** Professor Hitt, we start at 8:00. We take care of administrative matters and we start with testimony after that. Make sure to be back by 8:00. You are excused for the date.

3:14:49PM **THE WITNESS:** Thank you.

3:14:52PM **THE COURT:** Counsel, I've got a hearing on an injunction starting in 15 minutes. So we'll stand in recess until 8:00 a.m. tomorrow except that I can see Ms. Forrest wants to say something.

3:15:04PM **MS. FORREST:** It's only because my eyes now have become more expressive in the COVID world with the mask on.

3:15:06PM I wanted to just give Your Honor two pieces of information very quickly. One is, it is possible that we will be in Apple's case by Friday. I know Your Honor had been wondering about that, and we will deal with Apple in terms of the order of witnesses.

3:15:12PM The other is to give Your Honor three citations. I'll say them slowly. *Perry versus Leak* 488 U.S. 272 pin cite 282, U.S. v. Sandoval 472 F. 3d 645, pin cite 651 Ninth Circuit.

3:15:16PM And then lastly *Charlotte's Office* 425 F. 3d 1203, pin cite 1212 Ninth Circuit. On the issue we dealt with just

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3:16:05PM after lunch, Your Honor.

3:16:07PM **THE COURT:** Okay. Thank you.

3:16:08PM **THE COURT:** And then tomorrow we'll finish up

3:16:12PM Professor Hitt and then who do we move to, Rossi or Rubinfeld?

3:16:22PM **MR. DOREN:** Professor Rubinfeld, Your Honor.

3:16:23PM **THE CLERK:** Let me get your mic.

3:16:26PM **MR. DOREN:** Professor Rubinfeld, Your Honor.

3:16:28PM **THE COURT:** Then Cragg?

3:16:29PM **MR. EVEN:** Then Dr. Cragg Your Honor.

3:16:33PM **THE COURT:** And Rossi or is Evans coming back?

3:16:36PM **MS. FORREST:** It will be possibly, we think, Evans

3:16:39PM coming back for a short time, Barnes, Rossi, Mickens.

3:16:45PM **THE COURT:** Okay. All right. Good enough.

3:16:47PM We will stand in recess until 8:00 a.m. tomorrow. Thank

3:16:52PM you.

3:16:54PM (Proceedings concluded at 3:18 p.m.)

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22 **CERTIFICATE OF REPORTERS**
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24
25 We, Diane E. Skillman, Pamela Batalo-Hebel, and

Raynee Mercado certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter. We further certify that we are neither counsel for, related to, nor employed by any of the parties to the action in which this hearing was taken, and further that we are not financially nor otherwise interested in the outcome of the action.

/S/DIANE E. SKILLMAN

Diane E. Skillman, CSR, RPR, FCRR

/S/ PAMELA BATALO-HEBEL

Pamela Batalo-Hebel, CSR, RMR, FCRR

/s/ Raynee Mercado

Raynee Mercado, CSR, RMR, FCRR

WEDNESDAY, MAY 12, 2021